dmac
data management
and analytics
capabilities

Toolkit

Unleashing the power of data to transform your business

Funders

fsdafrica UKaid from the British people IDRC | CRDI

Implemented by

Oxford Policy Management ACCION mdm master data management

Working in partnership with

FSDT FINANCIAL SECTOR DEEPENING TRUST fsdZambia Expanding Financial Inclusion

Glossary/Abbreviations

AIB analysis	An experiment where two or more variants are shown to users at random, and statistical analysis is used to determine which variation performs better for a given conversion goal.
Alpha-numeric data	Data that is expressed with both digits and letters.
BAU	Business as Usual
CIF	Customer Information File: A computerised file used by companies that stores a customer's personal and account information.
Customer 360	The 360-degree customer view is the idea, sometimes considered unattainable, that companies can get a complete view of customers by aggregating data from the various touch points that a customer may use to contact a company to purchase products and receive service and support.
Data Lake	a storage repository that holds a vast amount of raw data in its native format until it is needed. While a hierarchical data warehouse stores data in files or folders, a data lake uses a flat architecture to store data. Each data element in a lake is assigned a unique identifier and tagged with a set of extended metadata tags. When a business question arises, the data lake can be queried for relevant data, and that smaller set of data can then be analysed to help answer the question.
Data rich	By 'data rich' we mean countries with a wide range of readily available data, e.g. through national statistics offices, up to date national surveys, the central bank, insurance bodies etc. and with good connectivity levels. In contrast, 'data poor' countries are those with less publicly available data, lower levels of connectivity, etc. For the purposes of DMAC, Tanzania has the richest data profile, followed by Zambia and then Sierra Leone.
DHS	Demographic and Health Survey
External data	Data that other organisations generate about existing or potential customers on their operating systems or that they put together through their survey and customer contact efforts.
Free text data	Data that is expressed as free-form words and sentences.
FSPs	Financial Service Providers: a broad term to include all those who provide financial services: banks, microfinance institutions, insurance companies/distributors, mobile network operators, and financial technology companies, including platform providers and aggregators.
CGAP	Consultative Group to Assist the Poor
Geo-coded data	Data that is expressed as information about geographical location held in a digital format.
GIS	Geographic Information System: a system designed to capture, analyse, store, manipulate, present and manage all types of geographical data.
HDC	Human Centred Design: a framework that considers human perspectives in all stages of the design process.
IFC	International Finance Corporation: part of the World Bank Group.
Internal data	Data that an organisation generates on its core systems and through operations, or that customers generate as they engage with FSP staff and respond to surveys and interviews.
Imagery data	Data that is expressed as graphic images or photos.
KPI	Key Performance Indicator: quantifiable measurements used to gauge a company's overall long-term performance.
KYC	Know-Your-Customer: Government regulations designed to prevent money laundering, financing terrorism and other crimes involving money. KYC regulation requires financial institutions to collect specific information as part of their due diligence of potential customers.
LSMS	Living Standards Measurement Study.
MAP	Making Access Possible.
MNO	Mobile Network Operator: a company that has a government-issued licence to provide telecommunications and financial services through mobile devices.
MVOT	Multiple versions of the truth
MVP	Market value pricing or proposition
Numeric data	Data that is expressed with digits as opposed to letters or words.
Relational database	A set of formally described tables from which data can be accessed or reassembled in many different ways without having to reorganise the database tables.
ROI	Return on Investment: a performance measure used to evaluate the efficiency of an investment or compare the efficiency of a number of different investments. ROI tries to directly measure the amount of return on a particular investment, relative to the investment's cost. To calculate ROI, the benefit (or return) of an investment is divided by the cost of the investment. The result is expressed as a percentage or a ratio.
Schema on read	Data that is applied to a plan or schema as it is pulled out of a stored location, rather than as it goes in.
Schema on write	Creating a schema for data before writing into the database.
SLIHS	Sierra Leone Integrated Household Survey.
SVOT	Single version of the truth.
UAT	User Acceptance Testing: the last phase of the software testing process. During UAT, actual software users test the software to make sure it can handle required tasks in real-world scenarios, according to specifications.
USSD	Unstructured Supplementary Service Data: sometimes referred to as 'Quick Codes' or 'Feature codes', is a communications protocol used by GSM cellular telephones to communicate with the mobile network operator's computers.
VAS	Value-Added Service: a term used by technology companies to describe non-core features.
WDI	World Development Indicators: these are compiled from officially-recognised international sources and present the most current and accurate global development data available and include national, regional and global estimates.

Table of contents

Introduction

With more data being created at a faster rate than ever before, it can be hard for Financial Service Providers (FSPs) ⓘ to know what to do with the plethora of data available to them. FSPs are capturing large amounts of data on their internal systems and also have access to external data – as a result of improved connectivity and increasing smartphone penetration, as well as through publicly available external data (e.g. national surveys). However, many FSPs are not making full use of this data as they may not understand its full potential, have information overload, inefficient processes and systems, and think it is expensive to make use of data.

Data Management and Analytics Capabilities (DMAC) was a two year programme that used data-driven evidence to build the capacity of FSPs in sub-Saharan Africa to use data more effectively, including through the design of inclusive and affordable financial products and services that respond to the needs of unserved and under-served adults, with a particular focus on women and youth. DMAC worked closely with partner FSPs to enhance their capabilities to manage and analyse data, develop and innovate new business models and reflect and share the lessons about what they have found does and does not work. DMAC was designed by **Financial Sector Deepening Africa** (FSDA) and the **International Development Research Centre** (IDRC). It was implemented in Sierra Leone, Tanzania and Zambia by **Oxford Policy Management** (OPM), in collaboration with **Accion Global Advisory Solutions** and **Master Data Management Ltd** (MDM). It was delivered in Zambia in partnership with **Financial Sector Deepening Zambia** (FSDZ) and in Tanzania in partnership with the **Financial Sector Deepening Trust** (FSDT) where it was known as DataDisrupt. Read more about DMAC on our webpage and in this **blog**.

This toolkit aims to help FSPs understand the different data sources available to them and how to use them effectively to transform their business. It draws on the valuable learning gained through the DMAC programme and **is primarily aimed at FSPs in both 'data rich' ⓘ and 'data poor' ⓘ countries who want to understand how to use data better** – particularly to reach a new, low-income, target market. It may also be of use and interest to those who provide services to FSPs in their respective markets (such as data management and research firms) and other organisations wanting to implement programmes that encourage FSPs to make more and better use of data. Throughout the toolkit, we provide examples of how we worked with our partner FSPs, within their respective country contexts, and the lessons we learned through doing so.

Learn more about the DMAC partnerships and projects

How to use this toolkit

The toolkit has been structured and designed to be used electronically. As such, we have included hyperlinks to other documents and websites, signposting to different parts of the toolkit etc. We have included all the tools we have used and adapted through the DMAC programme in a handy annex – with hyperlinks from the main body of the toolkit - so they are all in one place and easy to pick up and use. The toolkit can be printed off but some of the content will not be as easily accessible in hard copy.

We recommend that toolkit users do not simply read the toolkit from cover to cover. Different users will have different needs so we encourage you to focus on those areas where you need to build your capacity or have limited understanding.

We have developed a 'data readiness' checklist which will help you measure the data readiness of your FSP and which areas of the toolkit will be of most use to you.

After this introduction, the toolkit is divided into 3 main parts, as follows:

Part 1 The case for using data

We explore what we mean by data and the business case for FSPs to use data. We then outline how your organisation can prepare to make the shift to using data to improve product design and service delivery and provide a data readiness checklist for you to assess your organisation's level of data capacity.

Part 2 Using data to drive product design and delivery

Using product development as a use case of how data can be integrated into one area of an FSP's business, we take users through each step of the product development cycle, highlighting where data can be used to enhance product development.

Part 3 Data management and partnerships to support better data analytics

We explore data management and how to move your organisation forward in terms of data analytics. We then move on to exploring the possibilities of – and issues to consider around - working in partnership with others to move towards greater data-centricity.

We then conclude by providing indications of the next steps your FSP might take towards implementing a data-driven approach.

Most sections have five sub-sections as follows:

Background	Objectives	Practical application	Wrap up	Further reading
Why this section is important, what challenges we are trying to address	What you will have learned by the end of the section	Best practice guidance; how to use the tools we provide in practice and links to the tools in the annex; learning and insights from the DMAC programme	A summary of what has been covered in the section	Other documents which you can read to find out more about what is covered in the section

Within the sections, click on the signpost to go to other parts of the toolkit.

Explanations of terms or concepts that may not be familiar. Link to Glossary.

An insight gained during the DMAC programme.

Link to tools in Annex.

The toolkit comes with a health warning: like all other institutions, FSPs must ensure they comply with regulatory requirements at all times. This is particularly important when it comes to using customer data. Customer data must be used sensitively and in compliance with the data protection laws in the country of operation. Never share personal data (e.g. name, contact details) without a customer's written permission to do so. Always anonymise data. Ensure files containing personal data are password protected. Data protection regulation varies from country to country, but some key principles can be viewed below:

Data protection principles

We hope you find this toolkit useful. We would welcome any feedback you have on the toolkit and your experience of using it. Please send your feedback to **dmac@opml.co.uk.**

Part 1

The case for using data

Your FSP has access to a wealth of data but may not see the wide ranging and business enhancing use that data could have. In part 1, we explain the power data could have for your FSP and then explore how you can start preparing to make full use of that data.

1 The power of data

Background

FSPs ? collect a great deal of data – and are increasingly gaining access to a wide array of external data sources. Data can be used by your FSP to do so many things, right across the business. For example, it could help your FSP to (i) understand your current customers better and improve the products and services you are offering to them and the way these get delivered, with a view to improving profitability; and/or (ii) identify potential new customers and build profit by reworking your current product portfolio so it appeals to more customers, especially those whose needs are not well addressed by any FSP's current offer to the market.

More and more FSPs are doing (ii) as digital means to reach customers have expanded expectations of who can be reached by well-designed products and services. Mixing data sources across what used to be thought of as separate markets and industries can really enrich your FSP's entire business. In this section, we outline the business benefits for your FSP of using data and explain why a data-driven approach is good for both your FSP and customers alike.

Objectives

By the end of this section you will:

- understand more about the range of data sources your business could be using and how to use them;
- have a better understanding of the potential benefits to your business of making more use of the internal and external data available to you; and
- have begun planning how your organisation might start the journey towards data-driven product design and service delivery improvement.

Practical application

1.1 What is data?

Data is increasingly multi-dimensional. It comes from different places and more and more FSPs are shifting from just using internal data ? to using a mix of internal and external data. ?

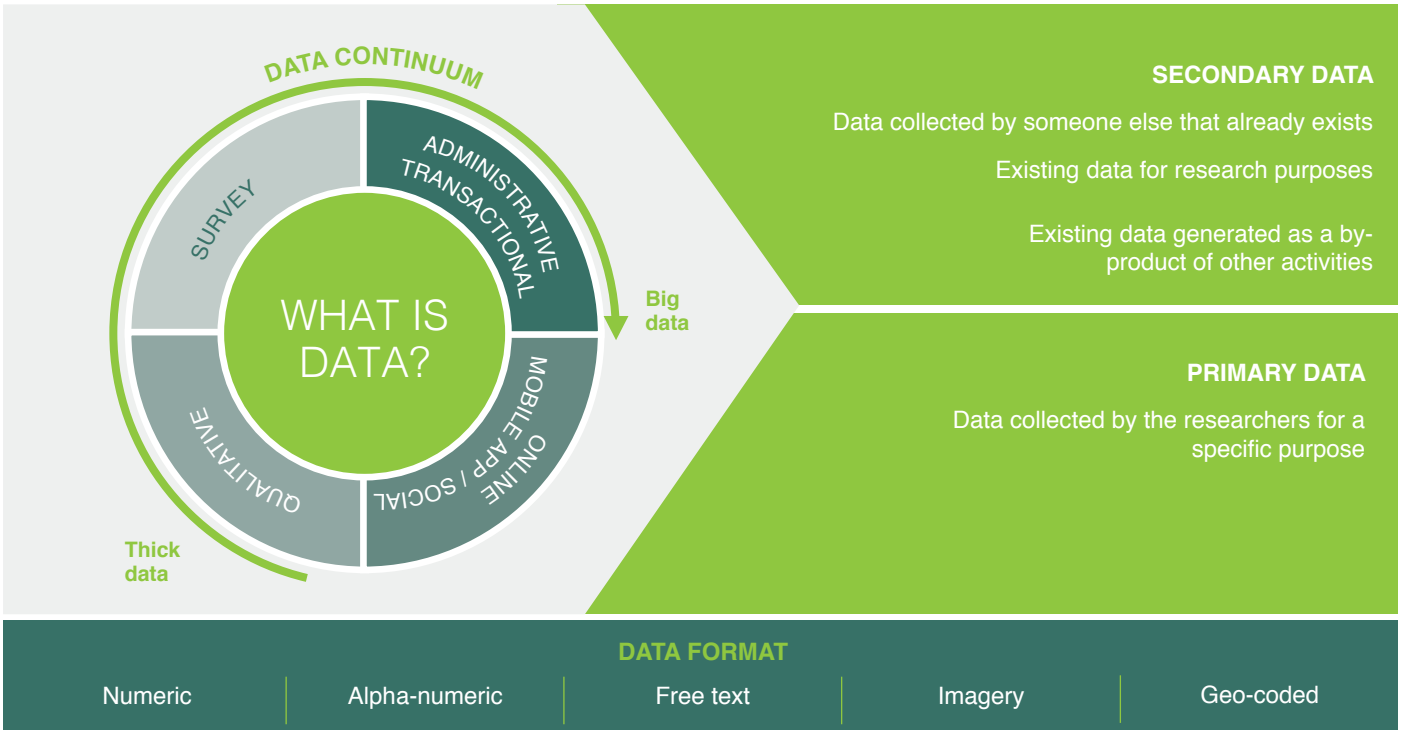
Data also comes in different forms (numeric ?, alpha-numeric ?, free text ?, imagery ?, geo-coded ?) reflecting the way it was created. New technologies and analytical tools have added to these forms and particularly to the way that different forms can be mixed together to create more powerful insights. For example, survey data can be mixed with geo-location data and then linked to transactional data in order to give real context to when, how and why people move money.

There used to be a fairly rigid distinction between primary data that tended to be 'researched' with a specific purpose in mind (e.g. FinScope data which has the purpose of understanding the financial inclusion landscape in a particular country) and secondary data that emerges from other processes but nevertheless holds insights useful to that specific purpose (e.g. national

livelihoods surveys). Here too, the balance is shifting with more emphasis on mixing secondary data on what people do and how they live with internal data on what services they use and what characteristics of that use help build profit.

This increasingly integrated data continuum can be visualised as shown in the figure below.

Figure 1: Data continuum



Source: IFC

On the DMAC programme, we particularly focused on merging data collected through FSPs' transactional/administrative systems (internal data) with secondary data collected through national survey agencies (external public domain data) and specific-purpose (external third party) data (mostly from Mobile Network Operators (MNOs ?)). We also added data from primary research that was more qualitative in nature. By combining these different data sources, our partner FSPs were able to improve their ability to adopt a more data-centric approach, including developing genuinely customer-centric products and services for low-income customers. The table below lists some of the data sources we interrogated with our DMAC partners:

Table 1: Data sources

Internal data	Public domain external data	Third party commercial data
• Customer data (CIF ?/KYC ?) • Product data • Channel data • Customer feedback/complaints (e.g. from call centre) • Primary customer research • Management reports	• Census data • National household surveys • National and international financial surveys (e.g. FinScope, Findex, etc.) • Industry analysis • Published market research	• Channel data (e.g. MNO ?) • Credit Reference Bureau data • Social media • Specialist analysis and research • Satellite imagery/GIS ? data • Partner market research

1.2 What is the business case for using data?

Data can be used by an FSP in so many ways to enhance its business. For example, it can help to define strategy, better assess risk, better segment customers, and establish a clear product focus. Using data does not have to be expensive: your FSP can make use of existing internal data, third party data (e.g. from a partner MNO), and a mass of free, publicly available external data. This data can be analysed using either existing software/systems or by purchasing new, relatively low-cost software.

Data can be used by any type of FSP in so many ways. However, there are a number of benefits that are specific to the different FSP types (banks, insurance companies/distributors, fintechs) targeted by the DMAC programme. Click on the links below to see how your business type can benefit from using data:

On the DMAC programme, we found that data can be used for three main business purposes: finding missed markets, refocusing delivery, and avoiding mistakes.

Data as a route to finding missed markets

In this increasingly digital age, customers leave behind a 'data footprint' of data from various different sources.

That footprint now spreads far beyond what existing customers do with any one FSP. Mobile money very quickly showed that people who had traditionally been considered almost 'unservable' by formal financial institutions were active managers of money. This confirmed the findings made by financial inclusion surveys, such as **Findex** and **FinScope**, over more than a decade. Increasingly, these surveys provide markers as to the kind of people beginning to touch the formal system digitally in at least some way. Those markers can be mapped across to other non-financial inclusion focused surveys, such as national demographic and health surveys, that describe how the currently unserved live their lives and what financial needs they might have.

Box 1: Using external data to create interest in data-driven product development

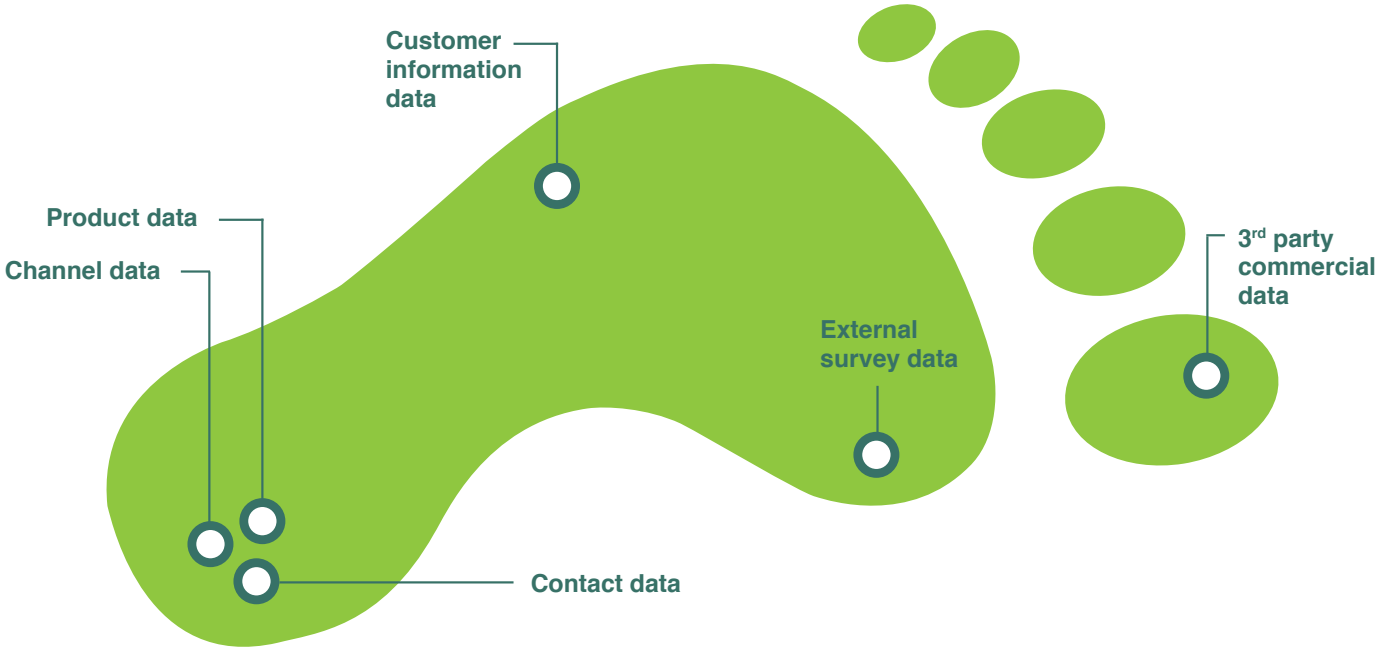
Our starting point on DMAC was to issue a call for proposals to the three markets that DMAC would operate in (Sierra Leone, Tanzania and Zambia). The call for proposals for each country contained an initial scoping of the market in that country. In each country the scoping highlighted unmet needs and the potential market sizes at play if those needs could be met.

The team used FinScope data for **Tanzania** and **Zambia**. For Tanzania, we then supplemented the analysis with FinSights data and for Zambia with **MAP (Making Access Possible)** profiling, both of which are based on FinScope data. For Sierra Leone, where there is no FinScope yet, we used a combination of **Findex** data and selected national data sources (**MIS -DHS** and **SLIHS**) to provide FSPs with an indication of the potential size of the low income market.

Source: DMAC team

FSPs can use surveys (both financial inclusion and non-financial inclusion surveys) and related analytics to reveal unmet needs in their country, but this is just a starting point. Once an FSP starts thinking about specific target markets (see section 3.2), they need to think about 'data footprints' for the sort of customers they want to target. An example 'data footprint' is provided below.

Figure 2: Data footprint



Those footprints can then be used to provide additional focus to the initial data landscaping efforts. They may lead an FSP to consider interrogating new data sources that had not previously been thought relevant.

On DMAC, these alternative data sources offered hidden insights of real commercial value to our partners. They told them how people live and make money, not just how they use it. One of our partners found an unaddressed market of millions of customers, much larger than the one they had been focusing on. With two of our other partners, we were able to shape a more realistic route to market than they had previously adopted. For another partner, we were able to show that they could still reach their intended target market but through a different product offer than the one they had originally envisaged. How we used data in practice to enable our partners to discover these insights is described in more detail in later sections.

Data as a route to refocussing delivery

Data can be used by FSPs to refocus the delivery of an existing product or service. By interrogating data from an existing product or service, an FSP can see what is and what is not working and can then use external data to see how the product or service could be refocused to work more effectively, e.g. by reaching new customers or increasing activity of the product. We used data to enable one of our partner FSPs to refocus an existing product, as explained in the box below.

Box 2: Using data to refocus an existing product

We worked with banking partner NMB to think about refocusing an offer aimed at a particular segment of the population. The bank already had specialist products for the segment in question but was not satisfied with their performance. We suggested they consider analysing internal data from products in other business lines that were not, at first glance, specifically focused on the customer segment they intended to reach. Analysis of a subset of mobile wallet data for a product that was not particularly targeted at any customer segment proved particularly beneficial.

NMB was able to find unmet customer needs, preferences, and useful behavioural patterns being displayed by customers with the same demographic profile as the target market. Once this had been found, we worked with NMB to re-segment the whole market and identified a large, multi-million customer sub-segment that appeared to be almost entirely unaddressed by the partner and competitors alike.

Source: DMAC team

Sector-wide data can also be analysed to explore how particular product areas can be refocused to achieve greater uptake or provide a better offering to customers. A CGAP case study, using data to explore the digital credit market in Tanzania, shows how this can be done.

At the request of the Bank of Tanzania, CGAP and the Busara Center for Behavioral Economics analysed data from three digital credit providers in response to other studies raising important concerns about digital credit's impact on customers. In total, they looked at transactional and demographic data for more than 20 million loans disbursed over 23 months. Through this data, they built a data-driven picture of the digital credit market's evolution in Tanzania, and its current state.

The analysis enabled CGAP and Busara to make recommendations for the Bank of Tanzania to strengthen regulation and oversight of digital credit and thus steer the market in a healthy direction. This research also formed part of a diagnostic of Tanzania's credit market that FSDA developed for the Bank of Tanzania, in cooperation with FSDT, CGAP, and Centre for Affordable Housing Finance in Africa (CAHF).

Exploring loan-by-loan data enabled CGAP/Busara to:

Understand the market

- The full scale of the market is unclear. This analysis can show us the **size and distribution of the market.**
- The distribution of **repayment rates and defaults** can be shown by product and date.

Understand consumers

- Segmentation allows us to explore inclusion and engagement for **different population segments.**
- We can explore whether people of different **genders, age groups, or locations** are less likely to be included or more likely to face negative loan experiences

Protect consumers

- **Evidence of under-representation** from the products can be clearly shown
- We can explore whether there are **signs of predatory lending** to the detriment of consumers.
- These findings directly feed into **regulatory recommendations.**

Source: CGAP/Busara Centre

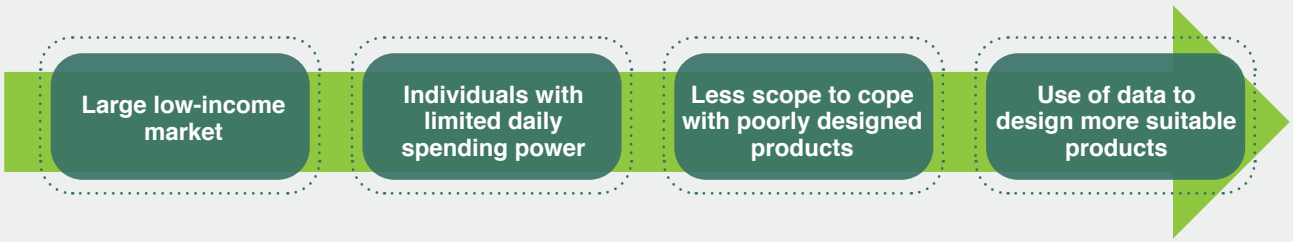
As well as the recommendations for the regulator which resulted from the data analysis, the data revealed some very interesting findings which are relevant to any FSP considering offering digital credit to the Tanzanian market. These include, for example, those who are most likely to take loans, average sizes of loans taken, repayment rates of loans by different market segments, likelihood of loan repayment depending on the time of day loans are taken, peak loan disbursement times, repayment rates by region etc.

Read the findings of the data analysis here

Data as a way of avoiding mistakes

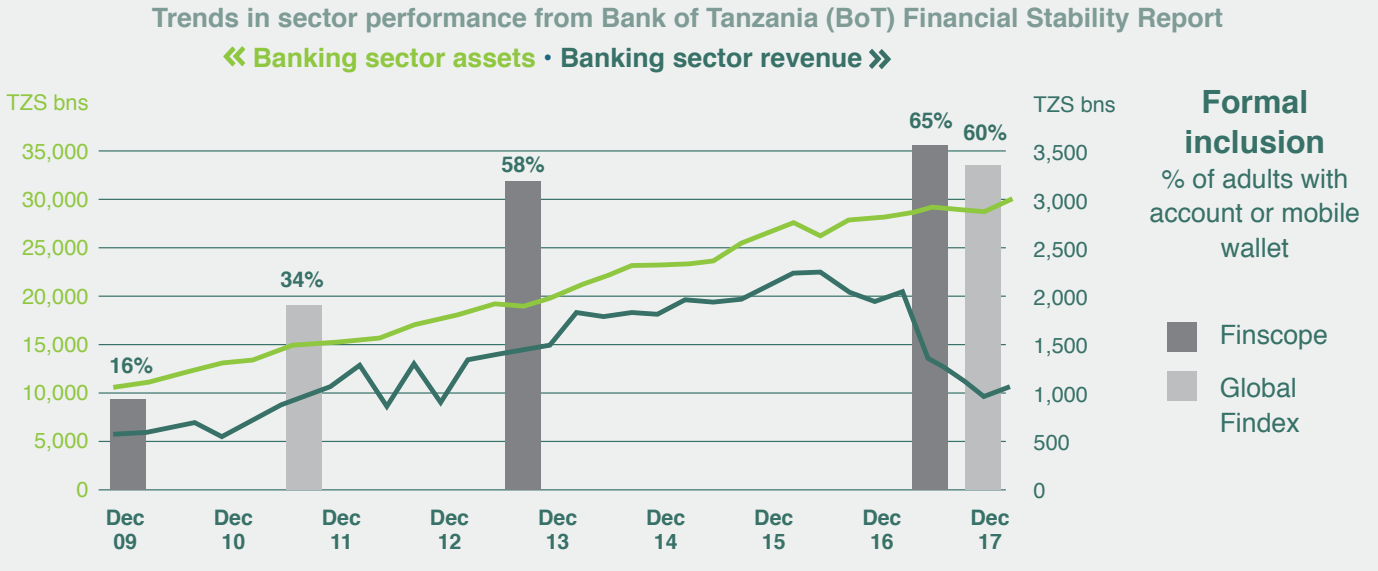
External data sources, such as FinScope, show that there is a great deal of potential in the largely unserved low-income market with many millions of potential FSP customers having no access to formal financial services. However, by its nature, serving this market segment means dealing with people who have less daily spending power. Less spending power means less scope to cope with poorly designed products and delivery. Data is part of the smarter design process that can cut out inefficiencies for which lower-income customers will not pay.

Figure 3: Tighter margins mean FSPs have to get even smarter at design and delivery



It is becoming increasingly complex to make a profit from finance as shown for the example of **Tanzania** in the graph below. As shown, financial inclusion levels have been growing while margins have been tightening, especially in the last few years. Trying to position products profitably against this background - without data on recent new customers relative to those who have traditionally been served - is almost impossible. Data-driven products can help provide differentiation for your FSP in an age of increasing competition.

Figure 4: Trends in banking sector performance in Tanzania



Insurance companies can make use of actuarial risk-pricing models to set their pricing structures. However, the majority of these models across Africa are based on products sold only into the top 10%- 20% of households. Insurers interested in moving downmarket can instead make use of income banding data which is freely available on the World Bank Group's OpenData portal. This enables insurers to understand how much spending power an adult has to have in a typical day to cover their share of total household spending at different points down the income spectrum. This constitutes a very powerful benchmark for the trade-offs that potential consumers have to make to commit to a high-value financial project.

On DMAC, we helped our insurance partners interrogate this data to see what would happen to their margins if they moved downmarket. The graphs available through the links below show how this happened, or will happen, in all three DMAC countries:

Sierra Leone | **Tanzania** | **Zambia**

This analysis showed that:

- If an FSP decided to shift from only serving the top 10% to serving the top 20% of the population, they would be doubling their potential customer base but the related growth in money available would be 60% in Sierra Leone, 50% in Tanzania and less than 40% in Zambia. Costs should not grow in line with customer numbers so the expansion to serving the top 20% should mean the cost income ratio would fall and net operating margin per customer would rise;
- If an FSP decided to shift from only serving the top 20% to serving the top 40% of the population, the potential customer base would, again, double but the growth in money available would only increase by 50% in Sierra Leone, 40% in Tanzania and just over 30% in Zambia. Under this scenario, the variable costs would become more significant and as revenue growth would slow, the net operating margin would drop sharply; and
- Moving further down the spectrum, the trade-offs become even tighter, reducing the gap between projected revenue per customer and projected cost per customer. Thus the margins would narrow, albeit more slowly.

By overlaying the spending power charts above with data on the base-level of access to transactional services, it is also possible to see how much money is in the hands of people at each income level who transact digitally, compared to those that do not.

On DMAC, this showed our partners that a move to the middle market would inevitably mean selling the product to an entirely different (predominantly rural and mobile-only) market whereas their established pricing structures only really worked for top-quartile urban householders who predominantly mix mobile money with bank services.

None of this means that a move downmarket cannot potentially become profitable, but it is clear that there will need to be trade-offs between the prices charged for services and the level of service being offered. For example, for insurance companies, there might be trade-offs between the premium that can be charged to the customer and the cover that can be offered. There will also need to be a balance between distribution and underwriting costs. All this must be balanced against the required return on capital to keep the overall insurance business compliant with regulatory requirements.

All the DMAC insurance projects used technology to take microinsurance downmarket (albeit in different ways) but in all cases, pricing proved an issue.

1.3 Deciding what data could do for your business

Some businesses believe that it is too expensive to make full use of data, worrying for example that this will require expensive IT systems and new staff. The counter argument to this is that your business **cannot afford not to use data** – especially if you are planning to target low-income customers.

Different use cases for using data

Data can be used to improve performance right across the business. For example, it can be used to:

Measure business

data is instrumental in tracking the KPIs of the organisation, its products and teams.

Inform and shape business strategy:

interrogating data can show an FSP what is and is not working and therefore shape its strategy going forward.

Improve business processes and optimisation:

data can be used to improve business processes and systems.

Reduce risk:

data can be used to identify and reduce business risks.

Drive innovation:

data plays a huge role in the ideation, product design, monitoring and improvement of products (this is explored further below and in more detail in part 2).

Predict the future:

through Artificial Intelligence/Machine Learning business can learn from data, identify patterns and make decisions (e.g. block transactions and push an advertisement) (see Box 5 for more 'predictive' tools).

Deliver personalised services:

one step beyond segment-based marketing is personalised marketing, which targets customers based on understanding of their individual buying habits.

Meet compliance and regulatory requirements:

FSPs operate under a specific regulatory framework, which requires significant levels of compliance and reporting. Effective use of data will help FSPs meet these requirements.

Improving products and services

The starting point for any executive management team that feels it is not making enough use of data is to brainstorm the possible reasons for the existing business model not working as well as it could or should.

If you decide your main problem is that your organisation is missing out on potential new users/routes to market

External data can help you to identify:

- markets of a size and monetary value that you have not previously recognised;
- fast-growing segments that you could reach by repackaging existing products; and
- new routes to market for previously excluded segments.

Internal data can help you to identify:

- an existing presence in markets that you had not realised you were already serving.

Data can be used to map existing products to better segmented markets and identify:

- potential customers who could be using your products but are being missed; and
- misaligned products, including:
  - products that could be realigned to reach bigger markets;
  - completely misaligned products that have no real market; and, only as a last resort;
  - new products that need adding to your FSP's portfolio because the data is telling you what customers need but are not getting from the existing market offering.

Some of the challenges that you are likely to face in doing this are:

- Making space for staff to invest time - and sometimes money - to manage and analyse internal data better. **In most of the DMAC projects**, competing priorities and lack of time were a bigger issue than lack of money.
- Finding people with the skills to analyse external public domain data to establish what it can tell an FSP about customer lifestyles, income levels etc, especially where published outputs are presented more for policy purposes than in a commercial context.

For example, **on DMAC** we used a mix of demographic surveys to improve market segmentation and used health surveys to benchmark claims rates on insurance policies. If you do not have sufficient capacity within your organisation to do this, you may need to work in partnership with third party local service providers in your market. Read more on partnerships in **section 5.**

... customers are struggling with the terms on which our new products are being launched

... the new accounts or wallet products being opened are not leading to sustained use

If your main challenge is that targeted customers are struggling with the product and/or stopping using it:

A mixture of **external and internal data** can help your staff to:

- understand the pathways to regular use versus dormancy for the customers you already have;
- identify potential pain points that may be stopping existing product offers working in any market;
- anticipate what new customers might find difficult with product offers that seem to work for others; and
- anticipate potential reactions to product terms as you enter new markets

Ideally, internal data should be used to flag emerging challenges before they become deep-seated problems. External data can provide context for why some products and services are working for some parts of the target market but not for others.

The two biggest challenges that you are likely to face when doing this are:

- Finding markers within internal data that can translate across to demographic markers that most public domain surveys rely on to characterise population groups. **On DMAC,** we found region, age, gender and some proxy for ranked spending power worked best.
- Some of the data from questionnaires used in public domain surveys can be difficult to interpret. You may need to work with a local service provider, or the owner of the survey (e.g. the national statistics office) to understand what the data really describes.

1.4 Finding and analysing data to build insights

FSPs often sit on a wealth of internal data generated and captured through their operations as well as feedback from customers as they engage with products but are struggling to fully capitalise on using them. There is also a wealth of external data that can tell FSPs more about how people live their lives and how non-customers live compared to existing clients.

Unless you are running a start-up company, you will have access to a range of existing customer data. There is also a range of external data sources (such as census data and household surveys) that are periodically put into the public domain. Alongside this, there is a growing body of third-party operating systems data (e.g. from social media companies or MNOs) available by payment or in partnership to create shared value by working together to reach customers with products each partner cannot deliver on their own. Read more about working in partnership in **section 5.**

In the table below is a typology of internal data sources (which was put together by the (CGAP) ⓘ and samples of indicative business questions that can be usefully addressed by the different types of internal data. In the middle column we indicate some of the external data sources that could usefully augment the internal data in providing an evidence base for answering the business questions shown.

Table 2: Typology of data sources and business questions

Type of internal data	Supporting external data	Indicative business question(s)
Production - Transactions data generated through various operational systems	Household/industry surveys – reported use rates for customers with a similar profile	Are there particular days/times during the week/month that we see a higher or lower volume in certain transactions? Are there any other interesting or unusual transaction patterns that we can't explain?
Accounts - Snapshot of account status, balance, contractual status, etc.	Household surveys – demographics/income levels of non-users	Are certain demographics or customer segments more likely to have past due accounts or higher balances? Have some customers become dormant and for how long?
Campaigns - Data on promotions that have run	Advertising tracking surveys	What campaigns have been most successful? What channels have the highest conversion rate/lowest cost of acquisition?
Communications - Inbound and outbound sales communications, including calls, SMS, emails, etc.	Capability surveys – propensity to use consumer protection	What patterns do we see in common customer complaints? What percentage of issues are resolved within 24 hours? Or more importantly, what issues are not resolved in 24 hours?
Channels usage – website or app analytics	Inclusion/industry surveys – channel use/preferences Partner channel data	What features are used the most? In conducting a transaction, what percentage fail to complete? At which point do customers give up?
Compliance - Data collected for regulatory compliance such as anti-money laundering and Know Your Customer	Inclusion surveys – availability of documentation	Are there any red flags, patterns, or outliers that may indicate fraud?
Loyalty - Participation in loyalty or rewards programmes		What is driving loyalty in our existing products?
Application - Data collected on enrolment: age, address, income, employment, gender, etc.	Inclusion surveys – availability of documentation	Do we collect any application data that is not used to make a decision?
Customer satisfaction - Surveys and focus groups conducted with customers		What do customers like/dislike about our products/ services?
Customer outcomes or impact - Survey and internal data or other indicators that demonstrate impact.	Inclusion/household surveys – Comparative demographics/ welfare levels	How do our products or services help improve the lives of our customers?

Source: Accion Global Advisory Solutions/CGAP

Preparing for analysis

Data quality is paramount to effective analysis. It's important to conduct rigorous data quality checks before analysis. How complete is the data? Is it structured in a way to be easily manipulated for meaningful insights? Can you use common customer identifiers to easily connect data sets? How easily is the data extracted? You can read more on data management in **section 4.**

Once you have selected external data sources to add to the data mix, you need to identify which bits of your own customer data might track the main demographic markers that other businesses use to characterise their customers or national survey agencies use for their respondents. The ones we found most useful were age, gender, region and some proxy for spending power.

If you are working with third parties, such as local service providers, it is best practice in terms of data protection, to create unique anonymised, but linkable, identifiers to which customer characteristics and product use patterns can be attached. When you have done this, all personal identifiers that could translate into identifying someone in real life need to be removed. Similarly, any identifiers that would allow a particular account or wallet to be identified should also be removed. Even having done this, you need to be careful about how much data can be shared without explicit customer consent, which will depend on local law. You will need to check the data protection regulations in your country with the relevant authorities. You can also revisit the data protection best practice guidelines in the introduction.

Getting started and combining data

Where you focus your efforts and how you use your internal data will be driven by the challenge you face or the business question. The box below gives several examples of how we combined internal and external data to improve the viability of health micro-insurance product offerings in Tanzania.

Box 3: Improving 'insurance partners' risk analytics as a route to more inclusive microinsurance

Microinsurance is all about right-sizing cover levels and terms of access so that premiums can be kept affordable.

- With one of our insurance partners in Tanzania, we used external Demographic and Health Survey (DHS) data to show one of our partners that their current pricing probably only worked for mainly urban, top quartile households. Middle-income rural adults had much lower rates of spend on health than their better-off urban peers and it looked possible to do a stripped-down version of the base policy for them. We were then able to confirm much lower rates of actual claim outside the metro areas using data from one of the distribution partners of our insurance partner.

- Microinsurance has very tight margins but significantly more volume than traditional top-end policies. With one of our insurance partners in Tanzania we used customer journey mapping **(see section 3.2)** and process mapping **(see section 3.3)** to identify where the main bottlenecks were in a partner product offer. This revealed to our partner that unless they digitised their claims processes they would not be able to handle the volumes needed for their product to be profitable even at an unchanged price and limited wider (rural) reach.

- Crystalised risk (e.g. someone going into hospital) is the biggest cost a health microinsurer faces, so it is really important that any abnormal claims behaviour is spotted as quickly as possible. Internal analysis of historical data can help determine which behaviours are the most likely indicators of fraud. Our insurance partner suspected that fraud had led to some of their financial losses during their initial launch but were not exactly sure how the fraud was occurring or how to protect themselves against fraud moving forward. By analysing one of our partner's historical data and looking for anomalies in the number of claims, claims filed compared with policy type, and treatment and diagnosis, it was discovered that many instances of fraud were being initiated by the healthcare provider rather than the customer. The team identified the following as potential indicators of fraud that should be further examined:

    - Treatment received does not match the claimed disease
    - Inconsistent pricing for the same treatment
    - The same person claimed at different hours in one day
    - A person claimed more than five times in one week
    - More dependents received treatment than the number of dependents on the plan
    - Claimants exhausted all their dependent covers at once
    - Policies issued on the same day as claims made for inpatient care up to the limit

The partner used this information to implement processes to update tracking metrics and quickly follow up on potential fraud to mitigate similar problems in future.

Source: DMAC team

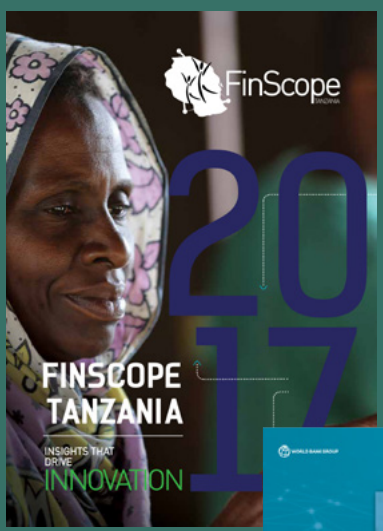
All this needs to be conducted with the business case in mind. We explore the business case for using data below. FSPs can profit more from financial inclusion by building better value propositions for customers and a big part of proving the business case for doing so is to frame internal data analytics within a wider external context. Click on the links below to view examples of how some of the key data sources can be used in practice.

Example 1	Example 2	Example 3	Example 4	Example 5
Scoping/scaling new forms of access (using Findex data)	Identifying the demographic drivers of growth (using census data)	Using a larger dataset to allow richer insights (using FinScope data)	Putting a monetary value on use (using World Bank WDI data)	Deriving financial insights from non-financial data (using DHS/LSMS data)

These examples draw mostly on external data from socio-economic survey and census data but other data can be used, such as external third-party mobile payments and telcom data. Social media data can also be used but an overlay of digital connectedness data on financial connectedness data **by the DMAC team** suggested that social media (for anything other than cheap calling and messaging) was almost certainly the preserve of the already served. For FSPs wanting to reach marginalised segments that have been traditionally ignored by the formal financial system, Living Standards and Demographic and Health Surveys may be more useful in showing who is not already being financially served. These surveys also have the benefit of looking at reach within, as well as, across households.

Box 4: Data sets used in DMAC projects

For DataDisrupt in Tanzania, the DMAC team used the following key data sources to work with our partner FSPs to undertake data landscaping:



Financial inclusion

FinScope

World Bank Global Findex

Basic data

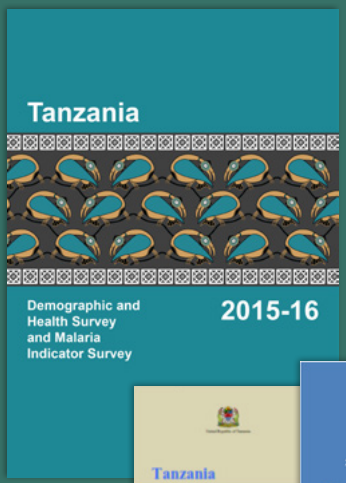
Census 2012

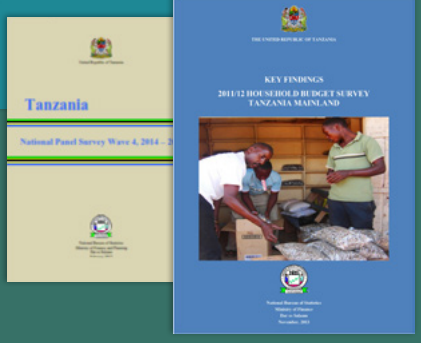
Lifestyles

Demographic and Health Survey

Household Budget Survey

National Panel Survey





Box 4: Data sets used in DMAC projects (continued)

In Zambia, we used the following key sources:

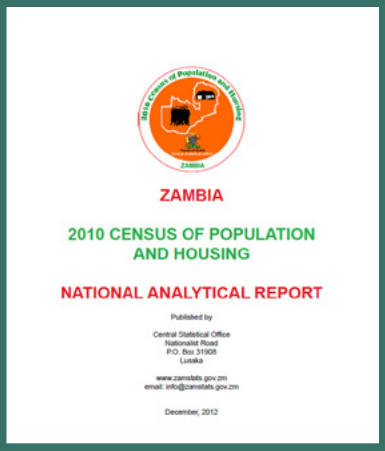
Financial inclusion

FinScope

World Bank Global Findex

Basic data

Census 2012



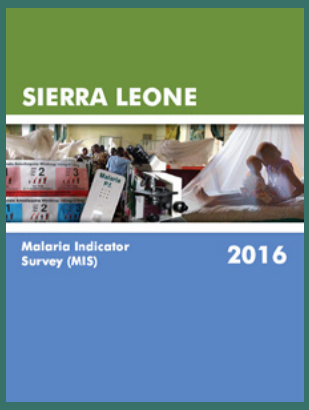
Lifestyles

Demographic and Health Survey
Household Budget Survey

… and in Sierra Leone we used the following:

Basic data

Sierra Leone Integrated Household Survey



Lifestyles

Malaria Indicator Survey

Financial inclusion

World Bank Global Findex

Validating results

This internal and external quantitative analysis can be complemented by qualitative customer research – data analytics is good at finding patterns that identify **what** might be happening and then talking to customers to validate and understand **why** it is happening. This is covered in more detail in **section 4.1.**

In analysing existing customer data, it is important to remain cautious in deriving conclusions from past performance data for a different customer segment or product. For example, micro-health insurance is a relatively nascent industry which makes reliable actuarial tables for the target low-income customer segment hard to come by. Insurers used to serving higher-income customers through their corporate products should not automatically apply the same risk assessment to the micro segment, given that economic status has an important impact on a person's health.

Lastly, while an IT specialist or statistician can help in compiling the data, more value is going to be extracted from the data if it is looked at by someone who knows the business well and has operational insights. They can ask key questions such as: Does this make business sense? Is it in line with what we understand about our customers? If not, what could be the source of the discrepancy? Finally, management and decision makers should not only be a part of defining the business questions to ask of the data, but should also be provided with the analysis so that they can make quick business decisions based on the insights derived from the data.

Wrap up

Having read this section, you should be more aware of what we mean by 'data' and how using data can help your business. This in turn, should help you to gain a better understanding of the range of data sources your business could be using, how to use them, and the potential business benefits of using them. You will hopefully also have started thinking about how your organisation might start the journey towards becoming a more data-centric organisation.

Explore further how your FSP can prepare to shift towards becoming more data-centric in section 2

Check how 'data ready' your organisation is by using our simple checklist in section 2.2

Learn more about the possibilities - and potential pitfalls - of working in partnership with other organisations to make better use of data in section 5

Learn how to improve your data management in section 4

Explore how data can be used to improve product development in section 3

Further reading

You can read more about the power of data in the following documents:

Unlocking the Promise of (Big) Data to Promote Financial Inclusion, Accion

This guide by DMAC consortium partner, Accion, talks about the potential of big data to help people to gain access to formal financial services. This is part of a wider effort to provide financial service providers with actionable insights drawn from data. It sets out strategic and tactical steps an FSP can take to first assess and then enhance its data capability.

Data Analytics and Digital Financial Services Handbook, IFC

The Data Analytics and Digital Financial Services Handbook gives financial service providers an overview of the potential that data and data analytics present for financial inclusion in terms of improving efficiency of operations and effectiveness of product development and marketing, as well as increasing outreach through innovative data-driven lending methods. It is the third handbook on digital financial services published by IFC and the Mastercard Foundation as part of The Partnership for Financial Inclusion.

2 Preparing for the shift to data-driven design and service-delivery improvement

Background

Most FSP executive management teams recognise there are opportunities to use data better and to serve the low-income market better, but in both cases the challenge is to know where and how to get started.

Almost all industry players advise starting the journey to becoming truly data-driven in a focused way and product development is a relatively straightforward area for testing new approaches. We provide this as a use case for using data in **Part 2.** But product development is only one way that data can help build a more inclusive and commercially stronger business model – data-driven risk management offers the prospect of reduced prices for the customer and wider margins for the provider; data-disciplined processes catch and mitigate mistakes before they create losses for customer and provider alike; and partnership propositions have a better chance of engaging commercial counterparts if they are built on a solid base of external and internal data.

In this section, we explore how your organisation can start preparing to shift to using data to design products and improve service delivery.

Objectives

By the end of this section, you will have:

- considered some project ideas that could get your organisation started on an enterprise-wide shift towards more data-driven decision making;
- considered the different stages within a data analytics framework and identified where your FSP currently stands and where it would like to get to;
- considered some of the challenges FSPs face when preparing to make better use of data; and
- assessed your own FSP's current state of data readiness to take on the challenge of integrating data into every aspect of your business.

Practical application

2.1 Framing the initial challenge

A 2017 Harvard Business Review article: What's Your Data Strategy (DalleMule, L and T H Davenport) lays out the spectrum of data analytics options that FSPs might consider. The article presents a framework for building a robust data strategy that can be applied across industries and levels of data maturity. The framework aims to help business managers clarify the primary purpose of their data on a spectrum from 'defensive' to 'offensive':

What's Your Data Strategy?

'data strategy—striking the best balance between defense and offense and between control and flexibility.

Read more

A **'defensive'** approach to data usage focuses on minimising downside risk: ensuring compliance with regulations, using analytics to detect and limit fraud, and building systems to prevent theft.

An **'offensive'** approach focuses on supporting business objectives such as increasing revenue, profitability, and customer satisfaction.

FSPs operate in a prescriptive compliance or regulatory environment so they have tended to adopt more 'defensive' data strategies that focus on finding predetermined 'single versions of truth' (SVOTs). However, 'defensive' strategies do little to encourage exploratory data mining to find hidden value in past data that has not previously had any relevance to compliance frameworks.

'Offensive' strategies focus more on finding 'multiple versions of truth' (MVOTs) that capture alternative ways for profit to be made out the same underlying business relationships. These are more common in faster-moving, less heavily regulated, and highly competitive consumer markets, such as mobile money.

The International Finance Corporation (IFC) developed the following framework which aims to move from a defensive to offensive data strategy by mapping different, increasingly complex, analytical techniques to increase competitive advantage.

Table 3: Analytical framework for business intelligence

	Descriptive	Diagnostic	Predictive	Prescriptive
Techniques	Alerts, querying, searches, reporting, static visualizations, dashboards, tables, charts, narratives, correlation, simple statistical analysis	Regression analysis, A I B testing, pattern matching, data mining, forecasting, segmentation	Machine learning, social network analysis (SNA), geospatial pattern recognition, interactive visualizations	Graph analysis, neural networks, machine and deep learning, AI
Competitive Advantages	Descriptive Analytics What happened? What is happening now? Reports	Diagnostic Analytics Why did it happen? Traditional BI	Predictive Analytics What will happen in the future? Modeling	Prescriptive Analytics How can we make it happen? Integrated systems

Information ——— **Optimization**

Complexity of Analytics

Source: Data Analytics and Digital Financial Services Handbook, IFC

No matter where an FSP is starting on the continuum, it is possible to build and enhance the integrated external and internal data environment needed to progress towards increasingly complex analytical capabilities. We used the framework to assess **each DMAC partner's** starting point and desired end point in terms of data analytics and overall, our partners were able to progress from purely descriptive to more diagnostic analytics. Two partners are now positioned to think about starting experiments in predictive analysis.

This toolkit deliberately does not presume a particular starting point for an FSP; nor does it assume that all FSPs will want to reach the end point in the framework (prescriptive). The box below explores what is meant by the different levels of analytics capacity shown in the IFC framework above. We go into more detail on the first two stages (descriptive and diagnostic) as these were most relevant to our partners on DMAC and then briefly summarise the two main techniques that the first stage of predictive analysis requires.

Box 5: Descriptive, diagnostic and predictive data analysis

Descriptive Analytics – uses high-level aggregate reports of historical records and answers questions about what occurred. Key Performance Indicators (KPIs) fall within this category.

Descriptive Statistics: Also known as summary statistics, descriptive statistics include averages, summations, counts, and aggregations. Correlation statistics that show relationships between variables also help to describe data.

Tabulation: The process of arranging data in a table format is known as tabulation. Cross-tabulation summarises data from one or more sources into a concise format for analysis or reporting, often aggregating values. It is a method for segmentation, allowing aggregates to be tabulated by gender or location, for example, or other segments of interest (Pivot Tables in Excel are one form of this).

Diagnostic Analytics – this involves finding key drivers or understanding changing data patterns. It is about asking why something happened; for example, asking why transaction patterns changed to determine if there is not only correlation, but causation. Diagnostic analysis usually requires more sophisticated methods and research designs, as described below.

Segmentation: Segmentation is a method of classifying groups into sub-groups based on defined criteria, behavior or characteristics. Segmentation can help to identify customer demographic or product usage categories, with quantified and statistically meaningful thresholds. This is often used in conjunction with regression analysis or more sophisticated modeling techniques to predict to which segment an as yet-unidentified prospective customer could belong.

AIB Testing: This is a statistical method where two or more variants of an experiment are shown to users at random to determine which performs better for a given conversion goal. AIB testing allows businesses to test two different scenarios and compare the results. It is a very useful method for identifying better promotional or marketing strategies between tested options.

Regression: Statistical regression is one of the most basic types of modeling and is very powerful. It enables multi-variable analysis to estimate relationships between a dependent variable, usually a metric of business interest, and a set of independent variables with which it correlates. Identifying statistically significant variables can guide strategy, focus goals and estimate outcomes.

Geospatial: This method groups data according to their location on a map, or in relationship to place and proximity. This can also help to identify customer and behavioral segments, such as from where and to where they send money, or which branches they tend to visit. Combined with more advanced techniques it can also enable location-based services to proactively engage customers who are near people or places of interest.

Box 5: Descriptive, diagnostic and predictive data analysis (continued)

Predictive analytics - these enable forward-looking decision making and data-driven strategies. From a business perspective, predictive models can deliver operational efficiencies by identifying high propensity customer segments and expanding reach at lower costs via targeted marketing campaigns. They can also help enhance customer support by proactively anticipating service needs.

Machine learning: This builds algorithms to learn from and make predictions about data. This method enables an analytical process to identify patterns in data without an explicit instruction from the analyst, and enables modeling methods to identify variables of interest and drivers for even unintuitive patterns.

Modeling: There are two primary modeling methods: regression and classification. Both can be used to make predictions. Regression models help to determine a change in an output variable with given input variables; for example, how do credit scores rise with levels of education? Classification models put data into groups or sometimes multigroups, answering questions such as whether a customer is active or inactive, or which income bracket he or she falls within.

Source: Reproduced from IFC – Data Analytics and Digital Financial Services Handbook

FSPs may face a number of challenges in becoming more data centric. The box below outlines the challenges the **DMAC partner FSPs** encountered in using data.

Box 6: DMAC Data challenges

The DMAC partner institutions were of different sizes, structures and at various points in their respective data journeys when we were working with them. We identified the following issues our partners faced with respect to better integrating data into their businesses:

Availability of external data: the three focus countries were specifically chosen because of the different levels of data availability and reported industry use. Our partner FSPs in Sierra Leone generally faced more challenges in accessing recent and relevant external data than those in Tanzania and Zambia;

Organisational readiness to use data: the diagnostic assessment we conducted for each partner FSP at the start of the project revealed a considerable variation in terms of data readiness. Some partners had established strategies and investments already made in data architecture and others were only starting to consider how data could improve and bring structure to decision making and product development;

Technology and systems: operations and compliance/reporting departments were some of the first to adopt the increased use of data. The level of technology and systems normally mirrored the level of buy-in from top management, which was reflected in the FSPs' willingness to invest in data solutions;

Buy-in of senior management: whilst we found that management structures bought into the principle of using data, the actual adaptation of decision making processes to become evidence-based or making investments to standardise data use and application was a considerably harder task;

Use of data in the product development process: structured product development processes, while present in all institutions, were generally light on the use of data to inform product structure and features. Most partners were not using external data sources beyond standard industry reports, even in institutions that had already made investments in data architecture; and

Lack of staff capacity to use data: although most of our partners demonstrated a desire to get staff to use data more, they had previously not had dedicated staff to handle data and even where dedicated staff were in place, the level of skill and capacity to handle data was variable and focused on descriptive data analytics and reporting, in all cases relying on basic query tools and MS Excel.

Source: DMAC team

These challenges are similar to those identified in a recent survey by Insight2impact (i2i). i2i ran a survey with the staff of 333 FSPs in six African countries (Ghana, Mozambique, Kenya, Rwanda, Tanzania and Uganda) to better understand their views on the use of data for decision-making and the challenges they face. Read more.

2.2 Data readiness

As mentioned in the previous section, it is important for FSPs to first take stock of where they are currently on use of data, what they want to do better with what is available, and where they want to get to in terms of data analytics.

Our starting point with our DMAC partners was to apply four areas of assessment to understand their readiness to work with - and reap the benefits of using - more data, as shown in the table below:

Areas of Assessment			
1	2	3	4
Organisational Overview	**Product**	**Operations**	**Technology and Systems**
• Corporate Strategy • People • Culture • Change Management	• Product Concept • Customer Understanding • Business Case • Product Development Process	• Operations Processes & Procedures • Risk Model & Underwriting • Project Management • Business Continuity • Data Strategy & Governance	• IT Organisation & Resources • Information Security • Digital Strategy • Logical Access • Channels and Integration • Data Strategy

Source: Accion Global Advisory Solutions

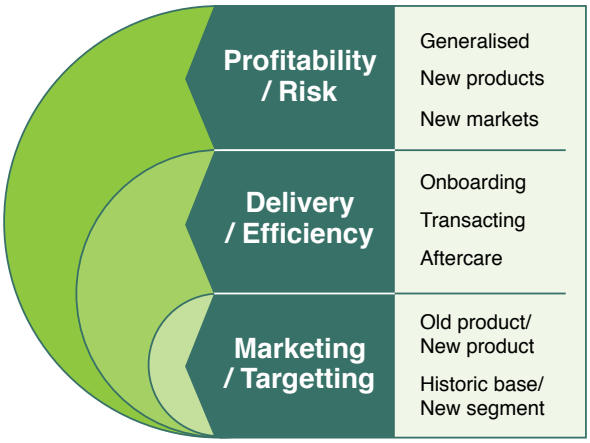
You can use the data readiness checklist below to assess where your FSP currently stands in terms of data readiness and where it would like to get to. The power of this exercise comes from the fact that it can provide an unbiased view of what can realistically be expected in terms of data inputs as well as what the relevant next steps are in an FSP's data journey.

Data readiness checklist	Mark (1 = low > 5 = high)				
Organisational overview					
Corporate strategy focused on data	1	2	3	4	5
Data analytics team set up and appropriately staffed	1	2	3	4	5
Corporate culture embracing data	1	2	3	4	5
Change management set up to drive innovative change	1	2	3	4	5
Product					
Product concepts derived based on data	1	2	3	4	5
Customer understanding processes and practices clearly established	1	2	3	4	5
Business case for product concepts clearly defined and communicated	1	2	3	4	5
Product development process supported by data inputs	1	2	3	4	5

Data readiness checklist	Mark (1 = low > 5 = high)				
Operations					
Processes and procedures for using data clearly established	1	2	3	4	5
Project management structures clearly defined	1	2	3	4	5
Clear risk mitigation processes in place and systematically followed	1	2	3	4	5
Data strategy and governance in place	1	2	3	4	5
Technology and systems					
Logical access to systems and data clearly defined	1	2	3	4	5
Information security protocols clearly established	1	2	3	4	5
IT structure set up to support data processes	1	2	3	4	5
Integration of various data entries into core system	1	2	3	4	5
Clearly established digital strategy	1	2	3	4	5

These scores need to be combined with management's own assessment **(from section 1)** of where the FSP is losing out because it is not using data to its full potential.

First, start by thinking about what the main business challenge is – maybe you feel you are being left behind in the competition to reach new markets or maybe products are not delivering expected results; sometimes the problems are limited to new ventures into new markets but others could start to appear in longstanding business operations. You first need to identify the main areas that the business challenge falls into, as per the figure below:



The challenge, however it has been identified, needs to be broken down into testable hypotheses – for example:

- new products in new markets not working as well as traditional business ➔ start with a data-driven relaunch design
- existing product in new markets delivering weak KPIs ➔ start with a data-driven risk and review of customer pain points
- product KPIs deteriorating even in established markets ➔ start with a data-driven profitability review
- new routes to market potentially opening up new markets ➔ start with a data-driven partnership proposal

A number of combinations are likely:

If your scores for **Operations** and **Technology and systems** are relatively high but your scores for **Organisational overview** and **Product** are weaker and you have a sense that your FSP is missing out on potential markets, we recommend that you:

- focus on extracting more internal data from your core systems and augment it with external data **(section 3.1)**
- deploy the Data-Driven Product Development tools in this toolkit **(section 3)** to create an exemplar product and use the success of that to drive organisational buy-in to wider change
- focus second round improvements on Data Strategy and Management **(section 4)**

If your scores for **Operational overview** and **Technology and systems** are relatively high but scores for **Product** are lower and existing products are performing less well in potentially important new markets than they have in traditional markets, we recommend that you:

- focus on using external data **(section 3.1)** and Human Centred Design (HCD) primary research **(section 3.2)** to check the appropriateness of product terms
- link internal data to **Customer Journey (section 3.2)** to identify pain points and then revisit the **Value Proposition (section 3.2)** and **Process Mapping (section 3.3)** to refine the Product Concept
- conduct your standard risk tracking separately for new versus traditional customers and identify any differential risk at different points along the customer journey
- refine the customer persona **(section 3.1)** and the target **market segments (section 3.1)** for the product concerned

If your scores for **Organisational review** are lower than your **Product**, **Operations** and **Technology and systems** scores and all products are struggling to sustain KPIs even in traditional markets:

- use external data to identify changing patterns of accessing financial services and see if these mean your current customer journey is failing to keep up with market expectations
- link the internal data you have to a **customer journey map (section 3.2)** for one of your key existing product and see where pinch points along the journey are getting worse over time
- validate/refine the internal data analytics with the HCD primary research described in **section 3.2**
- cost the required delivery improvements and feed the new data into your standard business case template but with restored uptake and use volumes and calculate RoI.

Wrap up

Having read this section, you should now have a good understanding of the different stages of data analytics (descriptive, diagnostic, predictive, prescriptive) and identified where your FSP current stands and where it would like to get to. This should help you gain a clearer understanding of the 'data readiness' of your FSP and the areas your FSP could focus on to move data capacities and use forward. Hopefully, you are now motivated to discuss these issues with your senior management team.

- Revisit the suggestions following the **data readiness checklist** to see which sections to focus on for your FSP.
- Read more about data management systems and how these can be developed to improve data analytics in **section 4.**
- Keen to start applying data to a particular area of your business? Learn how data can be applied to the product development process in **section 3.**

Further reading

Data Analytics and Digital Financial Services Handbook, IFC

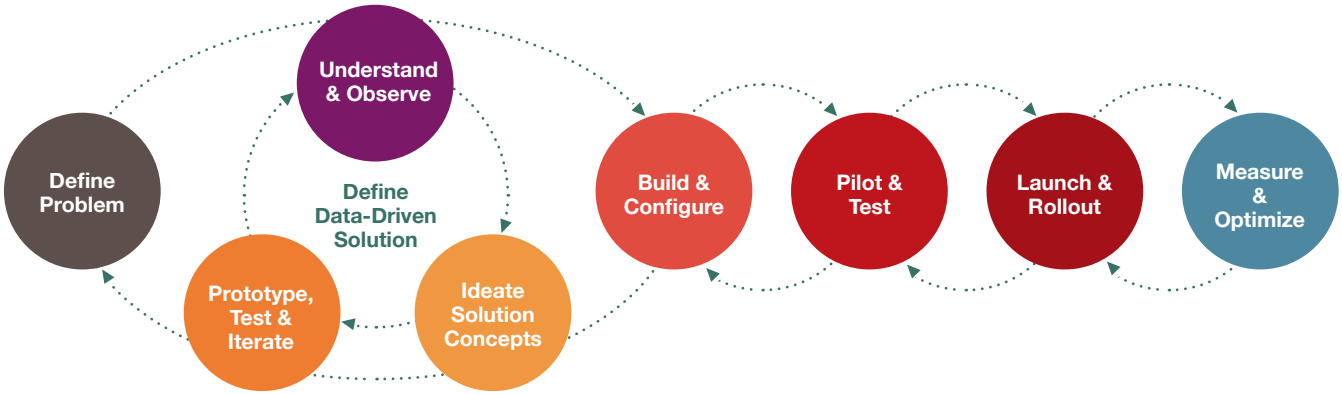
The Data Analytics and Digital Financial Services Handbook gives financial service providers an overview of the potential that data and data analytics present for financial inclusion in terms of improving efficiency of operations and effectiveness of product development and marketing, as well as increasing outreach through innovative data-driven lending methods. It is the third handbook on digital financial services published by IFC and the Mastercard Foundation as part of The Partnership for Financial Inclusion.

Part 2

Using data to drive product design and delivery

In a customer-facing service industry such as finance, all data ultimately derives from customer interactions with products and services. Data should therefore play a key role in the product development process. With increasing information and channels available to engage with customers, FSPs have a great opportunity to make products more relevant and responsive to their client needs.

It is important to come up with a clear process which outlines the relevant steps and offers scope for data to feed into ideas and activities, sets up data capturing provisions to monitor uptake and performance and creates space for iterations to constantly improve or rethink aspects of the offering. DMAC partner Accion Global Advisory Solutions has developed a product development methodology that is data-driven and customer-centric: this methodology was applied to all DMAC partner projects and is summarised in the diagram below.



PHASE 1

- Leverage **internal and industry data** and to assess and define **business challenge or market opportunity.**
- Develop high level **business case** and identify initial **partnerships.**

PHASE 2

- Develop an **in-depth understanding of customers'** financial behaviors, capabilities, needs, pain points, aspirations, and attitudes through **analysis of existing data and primary user research**
- Generate and test **innovative design concepts** that increase in fidelity as they reasonate more with users during testing.
- Assess **concept feasibility** against existing people, processes and systems; revisit and **refine business case** w/ required capital and operating expenses.

PHASE 3

- Finalize and build out **product concept, processes and data flows**. Identify and finalize key partnership agreements.
- **Prepare internal and external teams, processes and systems** for launch and rollout
- Pilot a MVP with subset of end-users; integrate lessons learned into beta test and full implement.
- Set a high level **change management strategy.**

PHASE 4

- **Track and evaluate product performance data** in the market to identify opportunities for improvement
- Based on findings, **revisit earlier stages in the process.**

Source: Accion Global Advisory Solutions

As shown by the arrows in the figure, the stages in the product development process should be iterative steps and the whole process is non-linear. The use of data enables the product development process to be more agile with quicker feedback loops. Without this agile and iterative approach, the product development process can become linear and disjointed and FSPs risk getting to launch without knowing whether they have a product that works and that customers desire and need.

3 Preparing for the shift to data-driven design and service-delivery improvement

Background

In this section, we provide an example of how data can be applied to a specific business area: product development. We explore how a combination of internal and external data can be used at specific points in each phase to design, build, pilot, launch and improve a product. Using data as an integral part of the product development process allows FSPs to address real issues of customer targeting, product delivery and bottom-line sustainability and ultimately improve their product offering.

Objectives

By the end of this section, you will be able to:

- understand how data can be integrated into different stages of the product development process;
- assess existing internal and external data to contextualise business problems or identify potential market opportunities;
- use data sources to develop customer personas and prioritise key market segments;
- develop initial hypotheses around financial products to serve key market segments;
- define the key components of the intended product's structure;
- analyse the main drivers of the business case for a product;
- understand the steps that need to be taken in order to pilot and test a product successfully; and
- know how to measure uptake and use of the product and put structures in place to continuously improve it.

Practical application

3.1 Phase 1 – define the problem

Define Problem

Most business 'problems' boil down to one of two categories – how can we grow our business or make our operations more efficient? It is helpful to start by looking at how your business is performing against its overall strategy and dig deeper into key challenges through further exploration of your business' KPIs. It is also helpful to explore what data the business is using to monitor performance against those metrics. We've created a simple tool to help narrow in on the business question.

Once you have determined the business questions you want to try and answer you need to:

- identify what data you have or can obtain that can help answer that question;
- consider what preparation, if any, needs to be done to get the data ready for analysis; and
- conduct analysis and validate results with business users and end customers

A good starting point can be to conduct exploratory analysis to look for interesting patterns in existing data. A business owner or analyst may notice something in a monthly management report or branch visit that looks odd, for example, a sudden drop-off in renewal rates on a particular product at a particular branch. By digging further into the data, correlations may be found. This approach becomes second nature for organisations which have embraced the use of data.

Tool: Setting KPIs

Box 7: Helping DMAC partners use data to define the 'problem'

One of the DMAC health insurance partners thought their main problem was related to fraud. We worked with them to plot by month (i) the number of policy holders who made no claim; (ii) those who claimed the full cover amount; and (iii) the amount claimed by those who made a claim. As well as providing some clear examples of fraud among those who claimed the full amount, the data revealed two other interesting facts: (i) that the provision of cover was releasing huge unmet treatment need; and (ii) that the price at which cover was being offered was a bit too high for the need that was out there in the unserved segments of the population (the product was targeted at middle and low income adults).

We then compared the revealed in-patient incident risk with surveyed in-patient attendance rates for people who pay for treatment themselves and realised that the offer of cover was actually doubling the rate of hospital attendance. People had been rationing necessary treatment because they could not afford to pay for it. This gave a new basis for discussions on pricing and underwriting arrangements.

Source: DMAC team

If your institution does not already have a centralised data warehouse with a visualisation platform (e.g. Tableau, Power BI) for business users to view reports and drill down into the data, it may be possible to create at least a working proxy that puts a range of internal and maybe even external data sets together in a linked fashion. To do this you need to create a "data inventory" by documenting where the data you need to answer your business question is generated and stored.

Tool – data inventory

3.1.1 Market segmentation

Internal and external data can be used to **define the problem**. An FSP first needs to work out what the business challenge is and for which target market they are aiming to solve a problem. A starting point is to consider the different market segments, which can be identified by using internal and external data. From a product development perspective, a useful application of this analysis is that it allows practitioners to divide the market into several segments with similar characteristics for which they can develop tailored suites of products and targeting strategies. In undertaking a market segmentation exercise, an FSP can effectively choose which segment, or set of segments, to target and how to allocate resources between product development and market communication activities in order to acquire new customers.

Once the market segmentation has been carried out, the FSP needs to decide which segments to target. The tool we used to do this with DMAC partners is provided through the link below. It challenges FSPs to differentiate between the strategic value that a given customer segment represents and the 'do-ability' of reaching this target in terms of time and resource requirements. This enables them to prioritise particular market segments.

Tool – prioritising customer segments

Box 8: Light bulb moment: discovery of a new market segment through external data

The DMAC team undertook some initial data analysis to present to partner bank NMB in Tanzania. The bank was looking for data to drive a compelling business case for a refresh of its youth products suite. We decided to co-create a characterisation of all stages of the youth journey towards full adulthood and the evolving financial needs along that journey.

Our initial analysis used a combination of census data and FinScope data. We then updated the landscaping for youth finance to allow for the potential impact of the Education for All (EFA) 2014 policy goals. We reworked these based on the 2018 projected population profile so we could see who was expected to be in school by age-band if the policy was delivering as planned. This brought about a real 'light bulb' moment for the bank: it revealed that a large segment of the youth population in Tanzania was being missed: those who are out-of-school. This is because most banks were offering products through educational institutions as this is a relatively straightforward way of accessing young people. With the increase in mobile technology in Tanzania – and young people being particularly well digitally connected - the bank realised that they could now reach out-of-school youth using digital means. With a potential segment size of around six million – many of whom will be transitioning into full adulthood, setting up their own businesses etc. NMB recognised the opportunity to develop a product tailored to this market.

Source: DMAC team

3.1.2 Creating personas

Once the target market segment has been agreed, FSPs can use existing data to start developing personas of the target customers. Customer personas are summary profiles of representative primary product users, consisting of narrative descriptions rooted in real people. This important tool helps us to see and design products from a user's perspective, synthesise observed patterns in qualitative and market research, and build empathy among stakeholders. Customer personas may include information on needs, goals, values, behaviours, contexts, motivations, challenges or key influences. The table below shows the types of information that can be used to develop customer personas.

Note: Personas can be used at several stages in the product development process. 'Hypothesis' personas can be built from existing data to personalise initial product brainstorming and help focus further research questions. These personas should then be revisited and updated after field research to reflect the reality on the ground, and ensure inputs are evidence-based.

	DEMOGRAPHIC/BUSINESS *Who are the customers?*	**BEHAVIORAL** *How do customers act today?*	**NEEDS-BASED** *What do customers need most?*
Description	• Demographic characteristics (age, gender, household) • Business characteristics (industry, revenue, costs) • Useful for describing customer segments	• Customer behavior (purchasing behavior, usage patterns) • Valuable for targeting different segments	• Concrete customer needs and attitudes • Helpful in creating value propositions
Example	• Nationality, geography • Age, gender, household size, marital status • Education level • Income, net worth • Employment status, industry, no. employees	• Purchasing, saving, borrowing habits and history • Typical product usage (frequency, intensity) • Financial, tech literacy • Usage of channels • Reliance on social network	• Prioritization of price vs. quality vs. convenience vs. service, etc. • Most important product needs and use cases • Emotional state or attitude toward product
Typical data sources	• Customer onboarding questions • Secondary market data	• Transaction data • Web, app, or other customer behavior data	• Customer interviews or surveys

Source: Accion Global Advisory Solutions

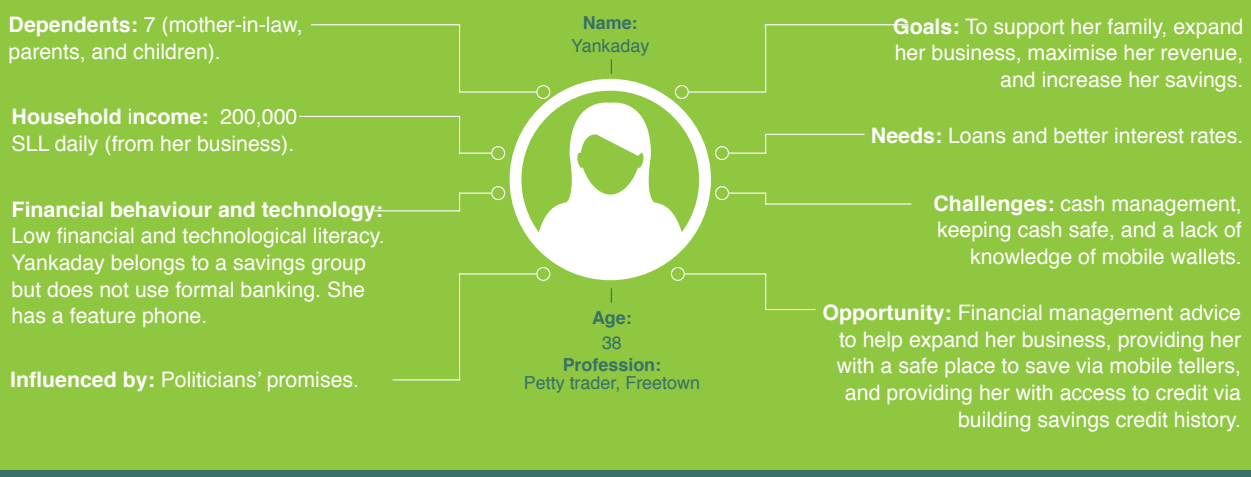
The below template can be used by your FSP to create customer personas:

Tool: customer persona template

Box 9: Creating customer personas with a DMAC partner in Sierra Leone

The DMAC team ran a 'strategic use of data' workshop with every partner FSP. At one of these workshops in Sierra Leone, DMAC partner SLCB agreed that they would prioritise targeting customers who fall within the low hanging fruit - functional - differentiator segment, as they had high strategic value for the bank. They were classified as low hanging fruit as a result of the existence of a digital channel which differentiated the FSP from its competitors, and the initial take-up from these segments of other products without a focused product design. As a group, the team reflected on which segments they wanted to prioritise, based on the market segmentation exercise and the external data presented by the DMAC team. The top choices were: market traders, public mini-bus drivers, farmers, students, and government workers. The team then decided to focus on market traders for their future target segment and, as such, mapped a customer persona, as shown in the illustration below. This persona was then used to inform the rest of the product development process.

Customer persona
– an example from a DMAC partner in Sierra Leone



Source: DMAC team

Once the customer persona has been developed, internal and external data can be used to further refine the characteristics, e.g. levels of digital and financial connectedness, position in household, spending power etc. In the box below, we provide examples of the data we used to enhance customer personas with our DMAC partners.

Box 10: Early external data landscaping to improve initial customer profiling

As an early cross-check on some of the persona work being done by our partners, we provided some common data landscaping that addressed known aspects of how different segments of the population were driving market growth and accessed basic financial services:

- Population pyramids overlaid with school/college attendance and position in household;
  Click here to see a population pyramid for Tanzania
- Access to basic financial services and use of digital financial services using Global Findex data;
  Click here for segmented financial access analysis for Sierra Leone
- Degrees of financial and digital connectedness using FinScope data;
  To see comparisons of different connectedness overlays for Tanzania • Zambia
- Banded spending power down the income spectrum using World Bank WDI data; and
  For affordability worksheets for Sierra Leone • Tanzania • Zambia
- Use of other financial products/services by degree of financial connectedness using FinScope data.
  To see conparisons of different product overlaps for Tanzania • Zambia

The first two of these were used to scope potential market size – i.e. is the apparently interesting idea from the persona exercise really interesting (in terms of strategic value and potential profitability) for my FSP? The second and third were used to validate persona assumptions about familiarity with technology and digital financial services. The fourth was used to validate initial assumptions about persona income levels and spending power. The fifth was used to validate potential persona interests related to specific product ideas.

Source: DMAC team

3.2 Phase 2 – product design

3.2.1 Primary research – human centred design

Having used internal and external data to gain an initial understanding of potential target customers, specific primary research can be used to enhance the understanding gained and help FSPs to design products that fully respond to target customer needs. Primary research is crucial in filling in any gaps and corroborating what the internal and external data analysis is telling the FSP. For example, an insurance company might be able to see from its data that renewal rates among young women are particularly low but the data alone will not be able to tell them why. Primary research could be used to fill this information gap and give FSPs a real competitive edge to develop products which are much more likely to be taken up and regularly used by new customers.

On DMAC, we used a human-centred design approach to primary research – ensuring human perspectives are put at the heart of the research. The qualitative approach implicit in the HCD methodology - enables the researcher to get first-hand, fresh and deeper insights into why customers make the choices they make. It should be noted that primary research can be used at all points in the product development process to validate and test what is being learned/ developed with actual customers.

Box 11: Gaining insights into early insurance policy renewals

Data was telling one of our insurance partners in Tanzania that many customers were renewing their policies before their previous policy had expired. The only way for our partner to discover the driving force for these early renewals was to undertake primary research among their customers.

Source: DMAC team

This section will explain how to design and implement primary research to fill information gaps about the target customer and compliment internal and external data analysis. We focus on the tools that were used for primary research undertaken by DMAC partner FSPs during the project.

It is important to be aware of (and sensitive to) gender issues when designing and undertaking HCD research, in order to ensure women's voices are properly taken into account. For example:

Ensure the research team includes female researchers – women may feel more comfortable being interviewed by other women and may be more likely to give honest and open answers;
Women may be more comfortable being interviewed alone (but still visible to other community members) or with other women. If they are being interviewed in the presence of, for example, male householders, their answers may be influenced by them;
Consider the time of day the interviews will take place: women may be less available at particular times of day e.g. before, during and after mealtimes; during day-light hours during planting/harvesting season etc.;
Consider the length of time needed to interview women – research tools may need shortening as women may be occupied elsewhere (e.g. taking care of children) and may have limited attention span; and
Ensure children/babies can be accommodated during - or even included in - the research activity.

Box 12: Seeking permission to undertake primary research

It is essential that you get the necessary approvals to undertake primary research among customers/potential customers. This is because you will be collecting personal – and potentially sensitive – information from people. If you do not do this, you risk your FSP getting fined. You will need to contact the body in charge of research approvals in your country.

In the DMAC programme countries, the relevant authorities to contact for permission to undertake research are:

Sierra Leone: Office of the Sierra Leone Ethics and Scientific Review Committee (Ministry of Health and Sanitation)

Tanzania: Tanzania Commission for Science and Technology (COSTECH)

Zambia: University of Zambia Biomedical Research Ethics Committee

These bodies should also provide you with research ethics guidelines that are applicable in your country, in order to ensure that the research is carried out ethically. If no guidelines are available locally there are several sets of research ethics guidelines available online including from the Economic and Social Research Council.

Source: DMAC team

We developed a guide to support our DMAC partners on undertaking primary research. This includes key steps in the process, an overview of different qualitative and quantitative research methods, and a sample discussion guide with key questions around user financial lives. The guide was used as a starting point for all partners in developing their own tools and questionnaires. Please click on the link below to access the guide

Tool: market research and customer understanding template

Another primary research tool we used on DMAC was ecosystems mapping. This tool can be used to show the channels that provide information, the people that influence decisions, and the barriers to information flows.

It enables the interviewer (and therefore the FSP) to understand which communication channels are most effective and which individuals/institutions raise most awareness or influence decisions.

Tool: Ecosystems Map

A ecosystem map from an interview for a medical company showing channels that influence or provide information e.g. TV and WhatsApp are very close to the centre, i.e. are more influential than the clinic/health centre. This was a surprise for the insurance company as they had assumed that a health centre would be the best place to share information about health insurance.

3.2.2 Ideation

Ideate Solution Concepts

Ideation is a process of using the data collected to generate new ideas and designs that leverage compelling insights and opportunities to meet user needs and desires. It is an open process which is meant to inspire outside-the-box thinking. Ideation leverages the researched user context to inspire new ideas and designs for products, services, marketing, messaging, and new ways to engage users.

Tool: how to carry out ideation

3.2.3 Building the Customer Value Proposition

As explored above, it is crucial to put the customer at the centre of a data-driven product development. This is done through the other mechanisms we describe elsewhere in this toolkit (HCD research, defining personas, customer journey mapping etc) but it is also important to specifically define the elements of a product that customers will really want and truly value – and identify any pain points the customer might feel with existing products and then ensuring these are minimised in future product iterations.

Ideation workshop with a partner in Tanzania

A Customer Value Proposition:

- describes in short what an FSP's strategic marketing plan describes in detail; and
- elaborates on the benefits to the customer: it describes what problems the proposed product solves.

Ideally, it should be a phrase that says in 20 words or less why the customer should choose your product over your competitor's.

Drawing on the findings from the analysis of external and internal data, the primary research undertaken by DMAC partner FSPs, and the market segmentation and customer persona exercises, your FSP should now be able to match the product concept with customer needs. You need to ask:

- Does our value proposition resonate with our target segment(s)?
- How does the value proposition for this product compare with other products in our portfolio? With competitors in the market?

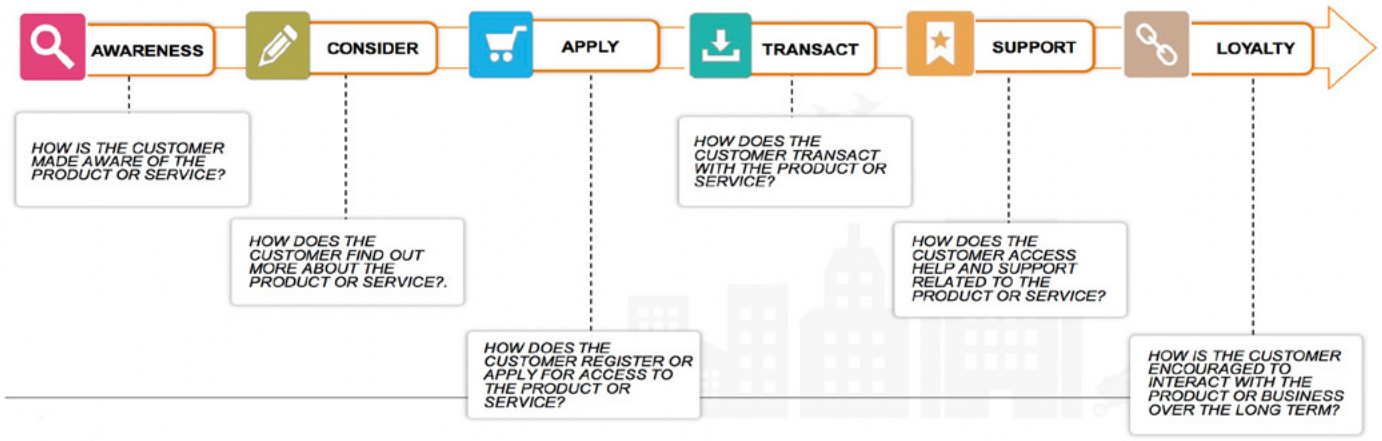
We used the value proposition canvas to help our DMAC partners think through what their product value proposition really was. The value proposition canvas is a tool developed by Strategyzer that helps map a product or service to a customer's values and needs. Product features are mapped to customer gains, pains, and jobs to be done, to clearly articulate how the product is offering value to the end customer.

Tool - Customer Value Proposition template

3.2.4 Mapping out the customer journey

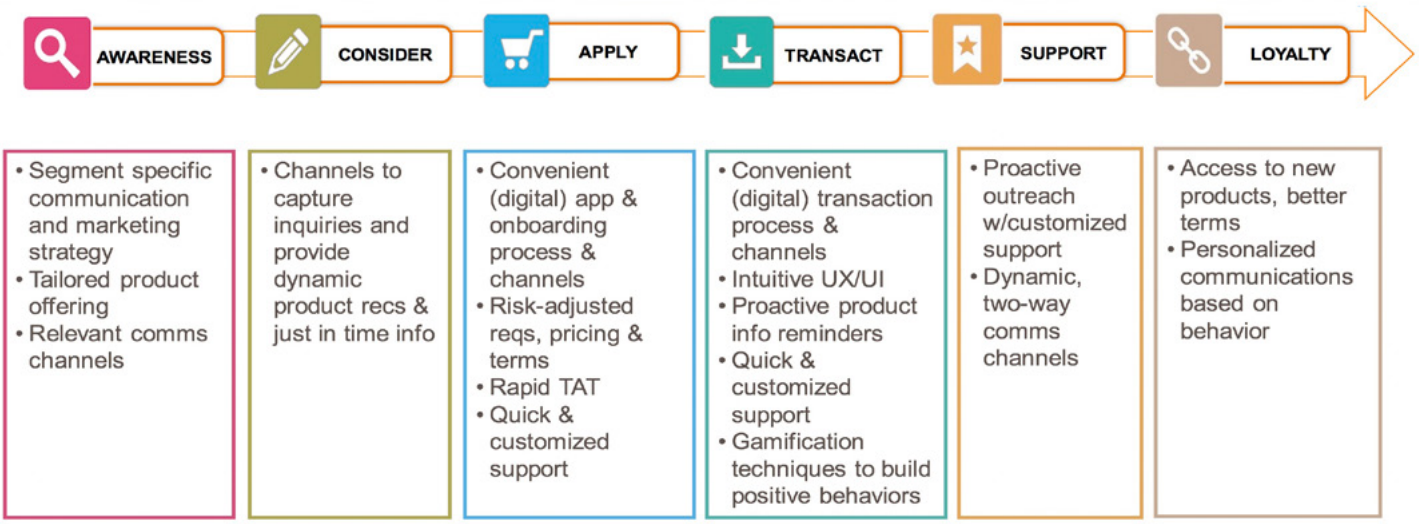
Customer journey mapping enables FSPs to understand (for existing clients) or brainstorm (for new clients) how a customer could move from first being aware of a new offer to signing up for it and then on through first use to regular use and ultimately becoming a loyal client. The customer journey map captures the various points at which customer engagement and communication happen. This is important as a product design tool because low usage of products targeted at non-traditional users usually comes from disconnects and pain points along the journey. It is also important because journey mapping is a visual way of understanding how customer data flows in and out of the institution.

The six steps along the customer journey to be considered are outlined below:



Source: Accion Global Advisory Solutions

With the persona and product solutions identified, through the use of data, teams can brainstorm how best to engage and generate the desired customer experience at each key moment in the journey. Some examples of the kinds of things to be included at each stage are included in the figure below. As shown, data has an important role to play at each stage of the journey. Based on the specific product solution and resource availability, FSPs can decide on the most appropriate mix of engagement strategies to use.

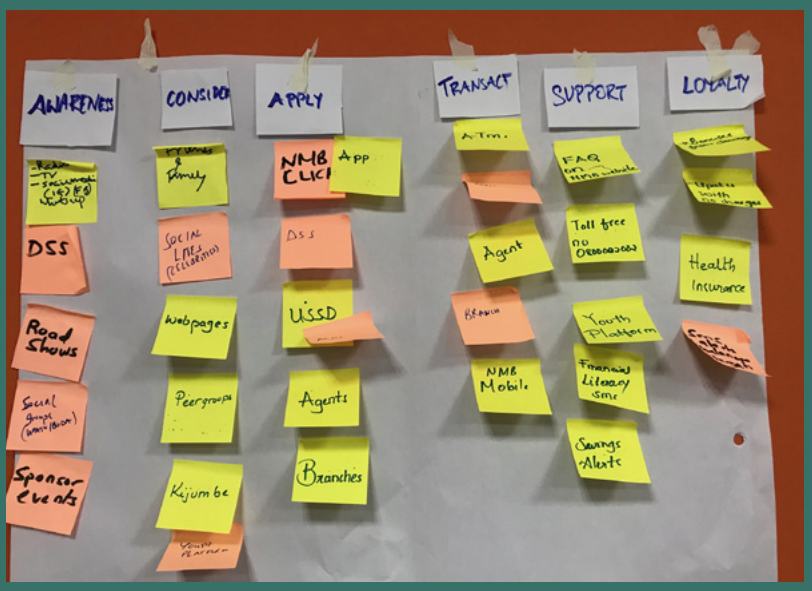


Source: Accion Global Advisory Solutions

It is important that your FSP is **intentional** — thinking about and taking deliberate actions — when using data in the product development process. This includes looking at the customer journey from a data perspective — mapping the inflows and outflows of data at each step. The exercise of explicitly 'looking through the data lens' allows FSPs to identify areas where data collection and use could be improved, where it relates to a priority business question. For example, a 'call centre graveyard' is a common finding – e.g. customer complaint data is often not stored in the same database as transactional or account data, making it difficult to act upon or cross-reference for analysis.

Box 13: Using customer journey mapping to identify differences in FSP and customer perceptions

A customer journey map was created with the staff at a partner FSP before they started their field research. Customer journey mapping was also undertaken with potential customers during the fieldwork. After the primary research was completed, the maps were compared in order to identify differences between the FSP's perception and that of their customers. One of the completed customer journey maps is shown below.



Source: DMAC team

Customer journey mapping should be done first by the FSP but can then be done with customers, as part of HCD primary research. It can then be very powerful to compare the different versions of the customer journey maps to identify key differences between how the FSP thinks the customer will experience the product at different stages in the journey and how the customer perceives this.

To further understand how data flows through the customer journey, another useful activity or tool is to create a detailed **data inventory** that documents the FSP's customer data at any given touchpoint, where it is stored, who has access to it, and how it is used. The inventory can contain any relevant data input, ranging from internal systems data, to primary and secondary research and analysis. Data mapping along the customer journey provides a high-level visual representation of this information. Documenting in more detail allows the FSP to understand the systems and processes required to enable the seamless flow of data in order to create an optimal customer experience. An example mapping of data flows along the customer journey is provided below.

Data flows along the customer journey

Aware		Consider		Apply		Transact		Support		Loyalty	
IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Socio-economic and population data	SMS Marketing	Competitor pricing data	FAQ on USSD	Credit bureau data	Apply via USSD	BAU Process data	FAQ on USSD	USSD data	FAQ on USSD	Social media analysis	Referral incentives
Telecom coverage data	Product info at branch	Actuarial data for risk adjusted pricing	FAQ on Website	Electronic Payments	Apply via Website	Accounts data	FAQ on Website	Social media analysis	FAQ on Website	GIS data	Personalized messages
Marketing campaigns data	Peer influencers	Application data	Peer influencer referral	Agent Performance data	Apply in branch	App engagement data	Peer influencer referral	Customer Satisfaction	Support via peer influencer	Loyalty data	Loyalty rewards

Box 14: Looking at everything through the data lens

We worked with all DMAC partner FSPs to map the data flows along the customer journey. For one of the DMAC partner FSPs, this included examining whether they were using data to ensure their radio marketing campaign was reaching their target customer segment. This exercise revealed that they were not collecting this data but needed to do so.

Source: DMAC team

Prototype, Test & Iterate

Creating prototypes

Once a product concept has taken shape, it is ready to be tested with target customers. Prototyping involves gaining customer feedback on an idea or a key part of a product concept, thus bringing in new data to inform the development process. Prototyping helps FSPs to validate ideas, refine product concepts and spark potentially new ideas based on interactions with customers and other market participants. It allows product teams to explore many concepts quickly and cheaply before investing in detailed design and development. It gives product ideas form so they can move out of the idea stage and into the reality of customers' lives, needs, desires, and abilities. The integration of external, internal and primary research data into the product design process so far should mean that the product already reflects these quite well, but it is still important to prototype to identify any further improvements that could be made.

Source: Accion Global Advisory Solutions

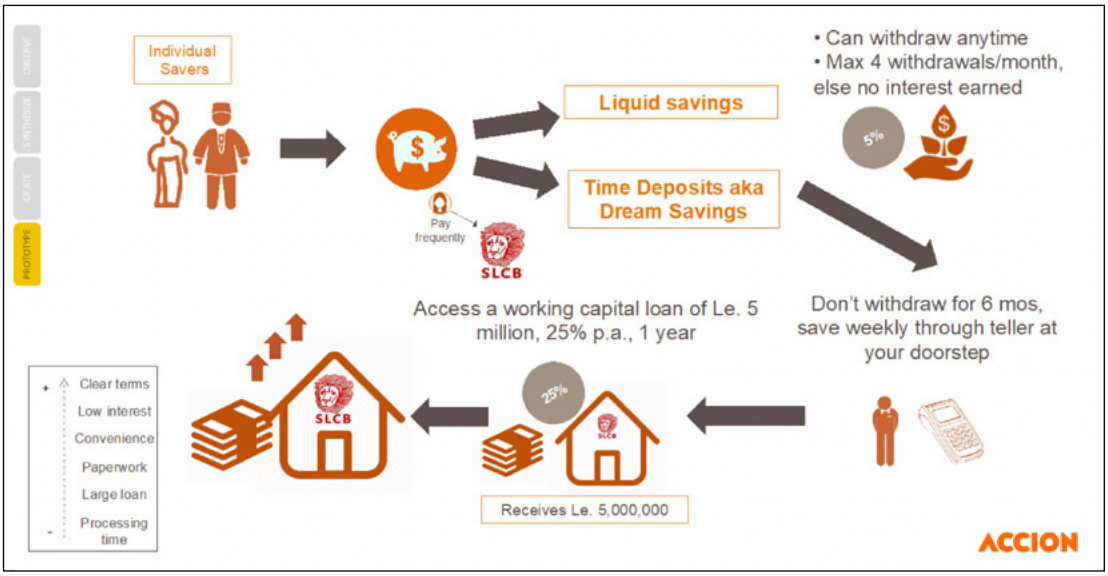
There are five main principles of effective prototyping:

1	2	3	4	5
Fail fast with many ideas! This allows you to reach success sooner.	Build-to-think and refine promising ideas. Prototyping is like an extension to brainstorming.	Efficiently use all available resources, skills and tools.	Actively involve the customer in product creation. Keep the target customer front and centre.	Keep it simple. Each prototype should focus on answering one core question as complex prototypes can distract and confuse feedback.

In order to gain most benefit, the product must be flexibly prototyped and tested. Product teams need to be committed to embracing customer feedback and iterating the product as needed. Important qualities of a flexible product include features that can be added and/or removed, underlying technologies and platforms that can be worked with and modified, an interface design that can be changed relatively easily and multiple teams (e.g. customer support and sales) being able to adopt and try new ideas to enhance customer experience.

To develop a prototype, especially in the early stages of a product concept, there is little need for refined interface design. To allow for the process to succeed, time needs to be built into the product schedule for planning, execution, review, testing and iteration of prototypes. The skills that are useful for good prototyping are the ability to illustrate or hand sketch, developing an interactive design in either graphic or digital form, and field research planning and execution.

The tools we used with DMAC FSP partners were hand drawn or simple, digitally-illustrated concepts. Keeping it simple is not only efficient, it leaves open a sense of possibility when sharing the prototype with customers and asking for feedback. Any tool can be used, from pencil to Adobe Illustrator. Example concept sketch prototypes can include: **product posters** with example usage stories, **ecosystem diagrams** showing the roles of customers, agents, banks and the flow of money, **story boards** showing the lifecycle of a product over time, or **customer journey maps** depicting the journey the customer takes as they use the product. Examples of the different prototypes are provided below:



Source: Source: Accion Global Advisory Solutions / Sierra Leone Commercial Bank

One of the most important elements to the prototyping process is asking the right questions to garner feedback for your next product iteration. Avoid yes/no questions, or over-explaining the product – present the prototype and see how users react.

Here are some **sample questions** that can be used when prototyping.

What are your initial impressions of this product?
How is it different from what you expected?
What did you like the most and least about our product?
Does the product seem easy to use?
Which feature of our product was the most important to you? Which was least important to you?
Is there anything missing that you'd like us to include?
Does this product address your issues with savings?
Would you use this product? Would you recommend this product to your friends?

3.3 Phase 3 – from product build to launch

Build & Configure

We explore the overall business case for using data to develop products in section 1. This section discusses developing the specific business case for the product itself. Building a high-level business case for your product concept is an important step in identifying major cost and revenue drivers, testing assumptions and sensitivities, and determining long-term Return on Investment (ROI). Below is a list of points to consider when building the business case:

Points to consider

- **What is the largest expected driver of revenue?** Consider interest and fees, as well as potential cost-savings (staff time, operational expenses)
- **How much initial investment is required?** For example, licenses, hardware costs (tablets, smartphones, etc.) implementation costs, staff costs, external consultants, IT systems/hardware/connectivity upgrades, training, etc.

- Carefully consider the **assumptions that underlie your projections**, particularly around customer uptake. For example, consider your marketing plan: What conversion rate will be required to obtain the projected number of customers? Is this realistic? What costs does this plan require (staff time, materials, etc) and are those costs captured?
- What would be your **variable and fixed recurring costs** for the next three years? For example, annual maintenance fees.
- **Where is the funding coming from?** Under what terms and conditions?
- **When could you reach an ROI** with this product?

Your FSP can make use of the data collected so far in order to identify the ROI of the proposed product, as follows:

1	2	3	4
Extract the relevant data from the external data landscaping analysis (e.g. market size, income bracket, expenditure patterns)	Combine the external data with insights from the primary research, as well as the FSP's past experience (drawing on their internal data) and market scans	Generate reasonable assumptions that inform projections for future numbers in terms of customers, income and expenses	Generate net income schedules that assess the profitability of the product

This then creates space for internal discussions on the desirability of taking the product to market and what, if any, changes may be required to improve its prospects. These discussions are more powerful and FSPs can be more confident in the decisions taken when they are backed by data rather than driven by 'gut-feel' based on staff's past experiences.

The above process can also create a framework for KPIs linked to the delivery of the business case to be clearly established and allocated to the relevant staff members. Click on the link below for an illustrative matrix used during the DMAC programme for KPI setting with partner FSPs.

Tool: template for setting product KPIs

The success of a product often relies on partnerships being created to support its development and delivery. Partnership negotiations require a thorough understanding of the drivers of the business case for all parties involved, in order to ensure a win-win solution can emerge, which is a fundamental requirement for the sustainable delivery of any initiative. Partnerships negotiations are discussed in more detail in **section 5.**

Box 15: Working with DMAC insurance partner on pricing

External data landscaping helped Innovate, our DMAC insurance partner in Zambia, confirm their target market (mobile money users) and develop the ideal customer journey. This was then validated through primary research (customer interviews). The primary research helped articulate the customer value proposition and resulted in some key changes to the product, such as the maximum number of claim days (from open-ended to 5) and the inclusion of maternity cover.

Initial assumptions about pricing were proved unrealistic based on estimated income of target market from analysis of third-party data from a fintech partner on their active user base and transaction history, combined with feedback from the customer interviews.

Source: DMAC team

3.3.1 Product structure and processes

Build & Configure

In order to start building the product, we recommend that FSPs develop a 'product structure document'. This enables the FSP to apply a systematic logic in order to clearly define the offering and the expectations from the product. It also enables the documentation of data requirements in a standardised format/process for the institution to operationalise (template below).

The outline of a product structure document varies on a case-by-case basis, depending on the focus and complexity of the product, as well as the specific institutional goals and targets related to it. FSPs often have their own product structure templates and these should be used where possible. **On DMAC** we deliberately worked with FSPs' existing templates where possible, offering suggestions for additions or extensions where appropriate.

Click on the link below to view a checklist which highlights the key components that should be included in a product structure document. These can be added to and adapted as required to fit the specific context of a given product or institution.

Tool – product structure document template

Process mapping

As FSPs think through and define their product structures, it is also important to map out the processes, technology and systems that underlie all aspects of the customer journey, including awareness, acquisition, approval, usage (disbursement/repayment/deposits etc.), complaint resolution, and customer engagement. This may be done through documenting detailed steps with corresponding roles and responsibilities and/or process maps. Defining processes also becomes the basis for policies and procedures, risk management, and inputs into staff training materials. Process mapping can also clarify data flows, storage and analysis.

The benefits for an FSP of process mapping from a data perspective include:

- making it possible to identify the data transfers required to deliver the product offering, therefore helping to define the prerequisites for the design of management dashboards and reporting;
- establishing a link between data flows and the customer journey (discussed in **section 2.3**) to improve efficiencies and enrich the understanding of customer engagement at the relevant touchpoints; and
- informing detailed requirements specification, a critical pre-cursor to building or adapting the systems needed for product delivery.

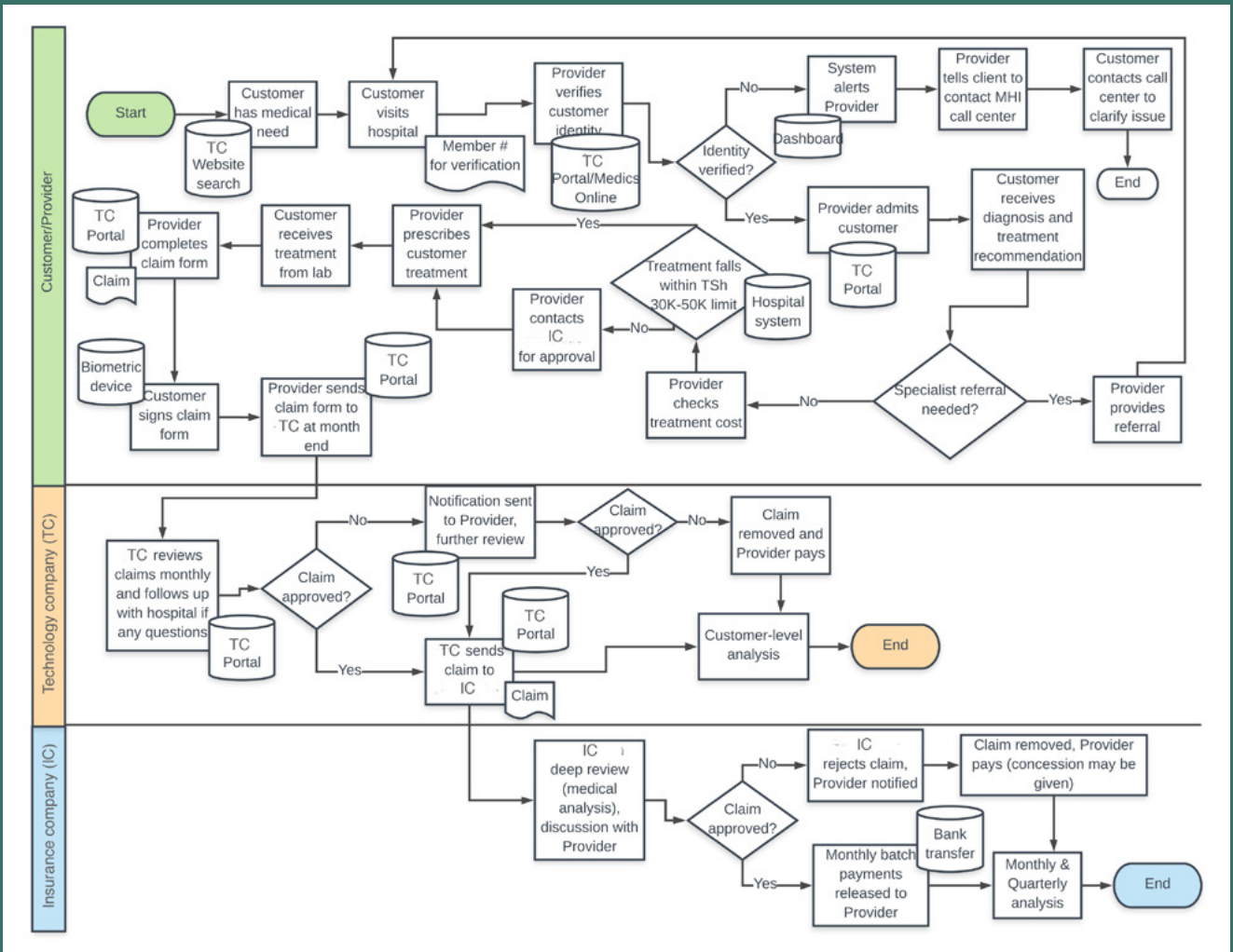
A basic process mapping template is provided through the link below.

Tool: process mapping steps

Box 16: How process mapping helped a DMAC insurance partner to refine its systems

An insurance fintech partner used process mapping to inform the operational processes and technical requirements needed to support the delivery of their new product. This mapping enabled the FSP to pinpoint the minimum set of data fields required in the mobile phone menu in order to feed the MNO database - to send to the backend system through their Application Programming Interface (API) - for underwriting.

The process also enabled the FSP to identify the critical success metrics to measure and track customer usage and satisfaction with the product experience through customised analytics dashboards. These will enable a data-driven feedback loop for continuous product improvements post-launch and help validate the business case for the product. The process map created is shown below.



Source: DMAC team

Having the right supporting systems architecture in place is key to an FSP being able to build the product, and properly access, manipulate and analyse data. The seamless flow of data is key to a data-driven product development process. Reviewing and improving these systems is an important step in the product development process. We explore this area in more depth in **section 4**.

3.3.2 Testing and piloting the product

Pilot & Test

Once a product has reached an advanced development stage it is important to test and pilot it. In order to ensure that the product development process has worked well and that data has been effectively incorporated, the pilot preparation stage serves two purposes: (i) to look back and confirm that all development activities have been completed in a satisfactory manner; and (ii) to check that all the required resources and processes are lined up for the effective deployment of the product.

For (i), FSPs need to make sure they have completed the necessary activities in terms of market research, concept definition, and product building. We've developed a pre-pilot checklist (see below) for this purpose. For (ii) with a tech-enabled product, a User Acceptance Test (UAT) (sometimes known as a 'beta test') is required to confirm that the systems are functioning as required. This is often done with FSP staff in a controlled test environment. Below we show the key steps in UAT.

1. **Analyse Business Requirements:** what does the system need to do?
2. **Create UAT test plan:** who will test what, by when, and who needs to sign off?
3. **Identify and create test scenarios:** based on the business requirements, outline step-by-step how a process should be executed, and what the successful output will be (e.g. onboarding data sent via API to insurance admin system, insurance admin logs into admin account to verify, data in correct format = success)
4. **Preparation of test data:** e.g. Dummy customer data to test on-boarding process, claims process, etc. for each scenario listed above
5. **Run the test cases and record results:** Indicate whether the test was executed successfully or if it failed on either time, format, or quality requirements
6. **Make modifications as needed:** fix whichever elements failed and re-test until product meets threshold for sign-off.

A pre-pilot checklist is provided below. Each of these items should be reflected in detail in the FSP's project workplan (which should note the tasks underneath each of these line items, the dependencies, who is responsible, etc.). Note that some of the activities, though in separate sections, may take place in parallel and are covered in different parts of this toolkit (for example, 'data inventory' is covered in section 3.1.) The pre-pilot checklist is intended to serve as a high-level reference point to ensure that all the required activities have taken place before the product goes to pilot in the market.

The checklist also includes some forward-looking activities which are required for pilot preparations. It is important not only to ensure systems are working but to prepare to take

the product to market. All of the work done to date which is captured in the product concept document feeds into staff training materials, marketing messages and materials, etc. Getting the 'go to market' right is key to product success.

FSPs need to make sure that the data management framework is in place to test the usability of the product and monitor its performance. This is both for possible tweaks to the product that may be required after the pilot and for longer-term performance assessment and reporting. Read more about data management in **section 4**. A lot of the activities in the checklist can be done while systems are being built so that you are ready to 'go live' once the processes have been established, systems tested, etc.

Tool – pre-pilot checklist

3.3.3 Customer Usability Testing

The move from piloting to effective implementation requires an assessment of the functionality of the product from both a user and systems perspective. Depending on the feedback received and data captured during the pilot, tweaks can be made to the product to make sure it delivers the intended value proposition to customers and delivers on its KPIs for the FSP. If multiple and significant tweaks are required, the FSP can opt to conduct a second (or multiple) pilot round(s), with the idea of iteratively improving the product ready for a public launch and scale-up.

Box 17: Tweaking a product as a result of data from pilot

The evaluation of the pilot of a product developed by DMAC partner IDT Labs (a fintech) in Sierra Leone showed that there was still a lack of trust in the accuracy of the application and that the groups continued to use the manual system because it provided each of the members of the group with a written receipt of their deposits. Although the evaluation also showed that, on average, only 20% of members had phones, IDT Labs decided to prioritise the development of an SMS receipt so that even those who did not have phones would be reassured that their colleagues were receiving SMS receipts. This would also encourage them to get access to a phone from within their families. SMS receipts will be included in the next version of the application.

Source: DMAC team

Often FSPs focus on testing system functionalities through UAT, yet overlook testing the usability of the product from the customers' perspective. Usability testing can also be conducted before a product is live as part of iterative prototyping during the design process **(see section 3.2)**. The table below shows the five quality components that need to be assessed in order to test the customer usability of the product and its design. It should be noted that these are five **possible** elements – your FSP will need to select those that are appropriate for the product.

Quality Components
Learnability: How easy is it for users to navigate the interface and accomplish basic tasks the first time they use the product?
Efficiency: Once users have mastered the interface, how quickly can they perform tasks?
Memorability: When users return to the product interface after a period of not using it, how easily can they re-establish proficiency?
Errors: How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
Satisfaction: How pleasant is it for users to interact with the design?

The tests are meant to ensure the product and system meet the exact needs of the client and that the offering is:

Effective:	Efficient:	Gives satisfaction:
the user is able to complete the task	does it take the user more time than they want?	is the user frustrated, or stressed?

During the pilot, FSPs should engage customers to assess these elements in order to identify usability problems and recommend fixes. Click on the link below to see a suggested structure for the user test.

Tool: structure of user test

Once the FSP is happy that all usability and systems issues have been addressed, it can move on to a scaled/public launch of the product.

Box 19: Improvements to a product post-pilot

DMAC partner IDT Labs in Sierra Leone launched their digital savings group product, miKashBoks in November 2019, having made improvements to it using data gained from its pilot with Village Savings and Loan Associations (VSLAs) in Kambia. Being able to pilot the product in a controlled environment enabled IDT Labs to study and observe the use and performance of the miKashBoks app. As a result, the product has been tweaked to provide better user experience, improved offline and data synchronisation capabilities, and meet the operational demands of monitoring saving groups, which has helped with group facilitation.

With this update, implementing organisations and supervising teams can now remotely monitor group activities, including remotely accessing data on groups and individual performances, enabling rapid interventions which are informed by live data. IDT Labs now intends to build on this and provide a dashboard that will use artificial intelligence to report on and help the delivery partners to identify poorly performing groups and trends.

The following improvements have been made to the latest version of the app:

- It can now **support other savings and lending models beyond VSLAs**. It has been adapted for easy integration with, and download and use by, other savings group types;
- It can be **used to audit/ observe a group.** Passive observers (such as staff members from the supervising organisation, donors, or partner organisations) can be added to a VSLA Group. These observers are not members of the groups contributing to the share capital nor take part in meetings, but will only have the function to observe group activity and access group data;
- It can now send **SMS notifications:** automated notifications of group activities and important events around members' portfolios can be sent to group members via SMS. Members with access to mobile phones will now be able to receive SMS messages on the savings, contributions, and loans, and also a summary of the group balances at the end of each meeting. They will also be informed of upcoming events like meetings and loan repayment;
- **Group cash-out flow**: at the end of a group cycle, shares distribution is automatically calculated for payout;
- **User-triggered data can sync to the Cloud**: data synchronisation has been enhanced for consistent data uploads from devices to ensure safe data storage and data harmonisation. Additionally, reminders to sync devices are sent to group admin if unsynced data is observed;
- Ability to **import group details:** if needed, group members' data can be imported into a group even after the beginning of a cycle, lowering the barrier to mid-cycle adoption by new groups.

IDT Labs are also planning to integrate with mobile money in future iterations, so groups can do financial transactions digitally.

Source: DMAC team

Phase 4 - Post-launch monitoring and improvements

Measure & Optimize

The value of accurate data collection on the performance of a product is clear. Data collection should include both transactional data and digitised inputs from ongoing customer feedback channels. Your FSP needs to make sure it has the right systems in place to capture the right data – and the systems in place to analyse that data and use it to improve and refine processes and products.

Once a product has gone to market, your FSP needs to assess how the product is performing against the KPIs, business case and data points determined earlier in the product development process. The data from the new product should be analysed regularly and tweaks made to the product in response to what the data is telling your FSP.

In addition to monitoring the product via dashboards (see below), your FSP can also conduct 'methodology audits.' This involves shadowing staff to see if processes, communications to customers, etc. are being conducted as planned. You can also revisit the process maps created during product design **(see section 3.3)** to see whether the process is working as planned. In line with the iterative nature of the data-driven product development process, your FSP can re-use a lot of the steps throughout the process to adjust/refine and improve the product in the next 2.0 version, for example by conducting additional customer usability testing **(see section 3.3)** and/or primary research **(see section 3.2)** etc.

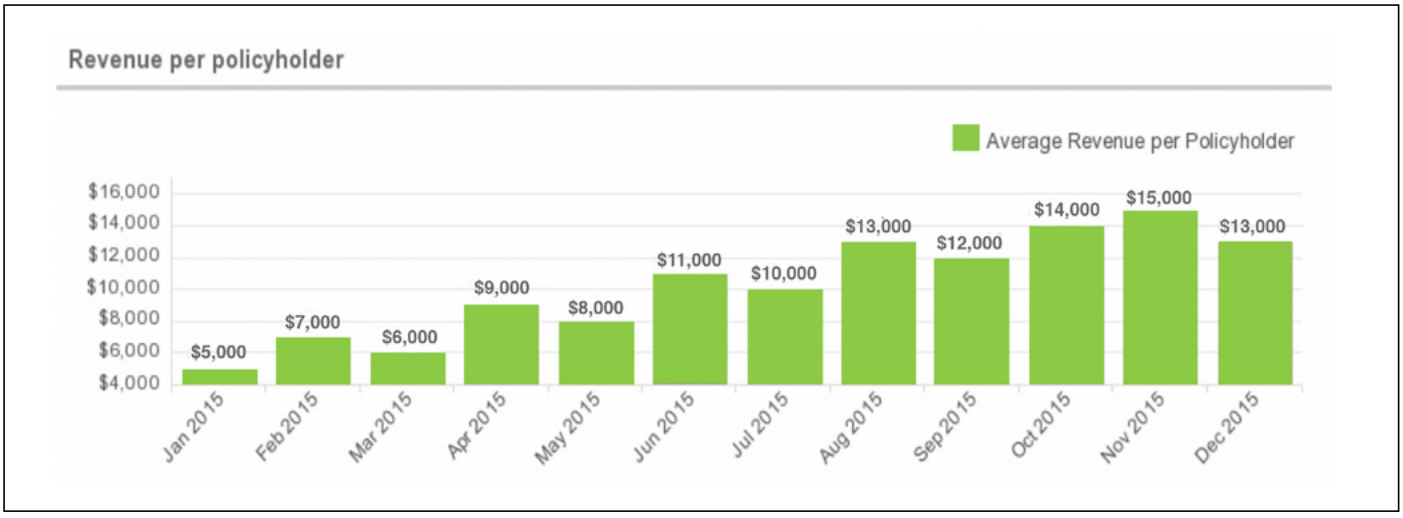
Through the link below, you can access some of the monitoring tools we shared with our DMAC partners.

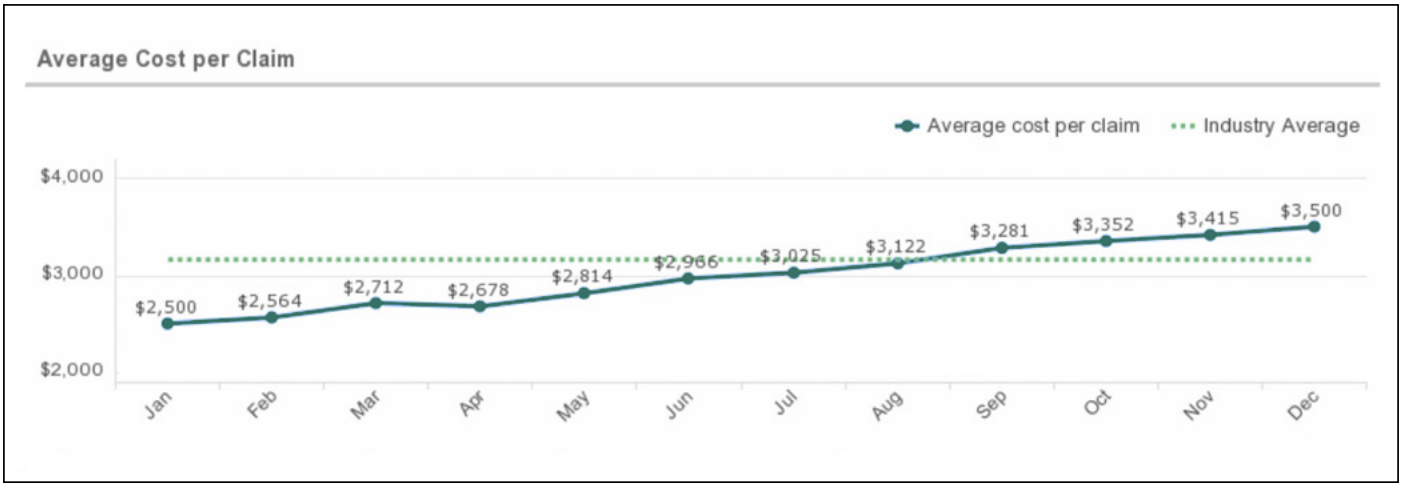
Tools for monitoring ➔

Dashboards

It is important to present data in a user-friendly way so that managers are able to easily track KPIs and make informed decisions on any necessary adjustments and relevant next steps. Dashboards are becoming standard business tools, typically presenting a default view of high-level KPIs for management, while enabling business users to drill down into each metric to understand its component parts. The development of effective business intelligence dashboards and/or any other type of management reporting requires understanding diverse users' roles, workflows, and data expertise.

Click here to view a selection of sample dashboards that we prepared for one of our insurance partners on DMAC. The dashboards on 'revenue per policy holder' and 'average cost per claim' are shown below.





Source: Accion Global Advisory Solutions

Wrap up

From this section, you should now have a clearer idea of how data can be integrated into a particular business area: product development. This, in turn, should give you a better understanding of how data can be used, iteratively, to feed into the different stages of the product development process in order to continuously improve and refine a product, making it more aligned to customer needs.

- Do you feel you need to have better data management in place before you start using data to improve your product development processes? Read more in **section 4**
- Do you want to learn more about what data is and its different business uses? Read more in **section 1**
- Do you think your FSP needs to start shifting towards using data more effectively? Read more in **section 2**
- Not sure how 'data ready' your organisation is? Take our data readiness test in **section 2.2**
- Could you benefit from working with a third party to develop new products or improve existing products? Read more about working in partnership in **section 5**

Further reading

CGAP Customer Experience Toolkit

This toolkit targets the financial services community that are starting their journey toward a customer-centric business model, with an added focus on banked and underbanked customers.

CGAP Customer Segmentation Toolkit

A guide offering practical guidance to those responsible for driving segmentation strategies. It introduces commonly used, time-tested customer segmentation techniques, explains how these techniques can be applied to answer the business questions faced by FSPs, and gives step-by-step instructions for implementation.

CGAP Customer Experience (CX) Playbook

The playbook provides a set of tools and roadmaps to help FSP staff serving poor customers, to implement customer experience improvements and to ultimately build a culture of customer-centric innovation. The playbook also describes typical challenges faced in implementing such projects along with suggested solutions.

Market Research for Microfinance

A toolkit for product development and market research aimed at microfinance practitioners.

The Field Guide to Human Centred Design

The guide provides 57 design methods for new and experienced practitioners, helping the user understand the people they are designing for, to have more effective brainstorms, to prototype ideas, and to ultimately arrive at more creative solutions.

Part 3

Data Management and Partnerships to support better Data Analytics

4 Integrated Data Management

Background

The first sections of this toolkit focus on demonstrating the case for using data to improve business outcomes and explore different ways of using data to drive more inclusive and customer-centric product and service delivery. These sections aim to reduce the number of pre-requisites in terms of the required data systems, architecture or management, and show how to use data directly to inform decision-making on improved product design and service delivery. Almost all industry players advise starting the journey to becoming truly data-driven in a focused way **(read more)**. To really benefit from the full power of using data, however, a bigger vision is needed for what should be possible on an FSP-wide basis from the outset.

This part of the toolkit shows how that vision can be put together. The starting point is that data only delivers its full potential to improve the bottom line when it mixes and crosses organisational boundaries. For example, product developers can learn from call centre data about the problems customers are having with products already being offered to them; bankers and insurers can learn how people handle money from mobile money and phone use data; external public domain data has more to say about the non-customer than internal data alone ever can. This section focuses on the management of integrated data: data that is brought together from a mix of sources to bear on a range of related problems.

This section is written from a general business rather than a pure IT perspective, but it does cover some very technical issues. It starts with three key pre-requisites of integrated data management, namely:

Data Quality | **Data Lineage** | **Data Governance**

All three of these present particular challenges when external data is being mixed with internal data and these are discussed in the accompanying boxes. They also have an important role to play in defining a form of data that is increasingly seen as crucial to good integrated data management:

Master Data

Issues related to bringing about change and formalising a new approach are then discussed at the end of this section.

Gartner, a respected industry research firm, predicted in 2018 that:

'data strategy—striking the best balance between defense and offense and between control and flexibility.

Read more

At multiple points during this section there are links to free material on the latest state of play in a fast-moving industry. These have been chosen for their relevance at this point in time, but they are not definitive. Over time they will be overtaken by new developments and new understandings of established approaches. We include them here to show the kinds of material that FSP business unit management teams might read to build their own understanding of what is possible in an industry that is steadily up-ending the traditional model of specialists providing data analytics. Analysis (particularly for 'offensive' business-growing purposes, as per the Harvard Business Review article referred to above) is increasingly moving into the hands of business users using so-called 'self-service capabilities' and is no longer only in the hands of IT professionals or specialist data scientists. It is therefore important that business managers start taking responsibility for this and that means understanding what the IT industry is now offering to FSPs who are willing to invest time and money in better analytics.

Objectives

By the end of this section, you will be able to:

- put product-specific use of data (as discussed in Part 3) into the wider context of how to shift a whole organisation to a more integrated data management model for evidence-based decision making;
- understand the key disciplines that need strengthening for an enterprise-wide shift towards a more integrated data management and analytics model to become a realistic prospect;
- understand better some of the specialist terminology used to describe different levels of enterprise-wide data integration;
- frame a discussion about the IT architecture required to support integrated data management and analytics capabilities; and
- develop a strategic framework for delivering enterprise-wide data integration.

Practical application

Integrated Data Management is:

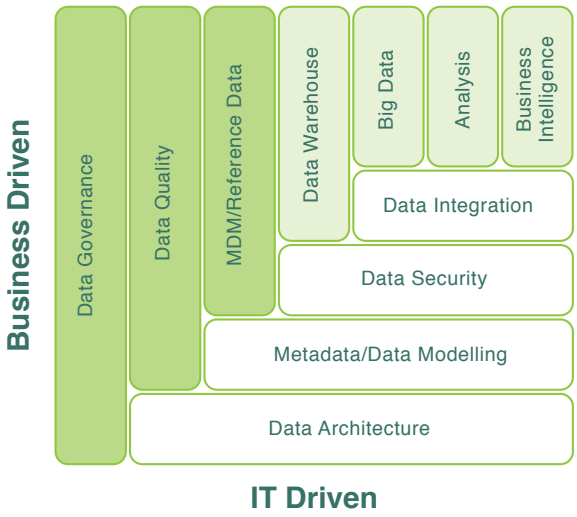
"the development, execution, and supervision of plans, policies, programs, and practices that deliver, control, protect, and enhance the value of data and information assets throughout their lifecycles."

Read more

4.1 Three key elements of integrated data management

Data integration is involved, to some extent, in everything discussed in parts 1 and 2 of this toolkit. As explained, external data can be used powerfully to bring additional perspectives and nuances to the information provided by data held on internal systems, even if the business involved is a single product business. When more business lines are added into the data mix, integrated data management needs to become more and more systematic (structured but flexible). Good data management is a continual practice which should be refined over time, based on learning from what is working (and what is not working) and determining what works best within the FSP's particular context.

DMAC's data management implementation lead, Master Data Management (MDM) Ltd., has developed the framework below to show which elements of data management are business-driven and which are IT driven.



Source: MDM Ltd

Three particular issues become critical to success when an FSP starts to mix external with internal data, especially where some of the external data is from a 3rd party commercial partner who shares clients with the FSP. These are **data quality, data lineage** (a sub-set of metadata management) and **data governance**. We explore each of these in more detail below.

Data Quality

The old maxim that 'rubbish in creates rubbish out' is part of the defining framework for data analytics. Data quality issues arise when data captured on the FSP's systems are affected by human error and/or bad process management. Often those doing data entry are in lower-level positions and do not see themselves as the owners of the information content that they are creating. They also generally have no incentive for capturing high quality data. This problem can be compounded when multiple IT systems within the FSP maintain the same information differently, and do not 'speak to' each other: fixing quality in one system does not automatically fix the quality in the other(s). The problems multiply when the FSP is partnering with a third party that brings in a lot of customer data which needs to be integrated into the FSP's data, meaning the creator–user divide crosses enterprise boundaries. We discuss working with third parties further in section 5.

The figure below shows the different components that contribute to good data quality:

Source: DMAC, adapted from a number of different data quality frameworks

Each of the FSP's major data assets needs to be governed by a **data strategy** (see section 4.4) with processes for ensuring data quality as a key layer in that strategy.

Data Modeling and Metadata Management are disciplines that provide context and documentation to data. Broadly speaking, metadata can be split into business metadata (which provides business context) and technical metadata (which defines how and where data is stored). A common example of business metadata is the business glossary that defines terms across a business domain, providing an authoritative source for all business operations, including its Database Systems. The glossary helps stakeholders across your organisation collaboratively agree on the definitions, rules, and policies that define your data – for example defining the calculations used in each report. And it makes this information easily accessible to every data citizen for faster adoption. Read more about the difference between a business glossary and a data dictionary in a **blog** by MDM.

Data Lineage is that part of metadata management that documents the movement of data within an enterprise.

An industry provider of data integration services, Octopai, has published a paper that explains the main concepts and use cases for advanced data lineage.

Read more

OCTOPAI

Data often has to be extracted from different sources and then manipulated to make it useful and linked to other data. Data lineage is about keeping track of how this happens. It captures the journey data takes as it moves from its originating source to the ultimate Business Intelligence (BI) systems and analytic products created from it. Without it, time and resources can be wasted on explaining why two apparently identical indicators show different results. This may not be the failure it might seem to be, because data can be used in more than one way and it can have equally valid but different transformations in different business contexts. Good data lineage is what makes integrated data management structured and systematic but not rigid. A business unit can keep data it creates in a form that best captures the full richness of its day-to-day activities with customers, but still manipulate it for cross-cutting corporate functions and present it as a more holistic view of how an enterprise makes money from its customers. In effect, it is data lineage that allows low-level data to break out of its silos so that it can be integrated to create further value to the business (such as **Customer 360** ⍰).

Fortunately, there are tools to help create and sustain good data lineage as the challenge gets more complex and data starts crossing individual system boundaries.

Read more about the considerations required for successful metadata management in a **blog** by MDM Ltd.

Data Governance

Data governance is the business foundation of data management: changing behaviour to ensure the delivery of trusted and valuable information. Data governance defines the decision making structures, roles, processes and policies for using data to meet business needs – both to generate revenue and to manage risks. Data governance ensures that the right people are involved at every step of the data management process - making decisions, understanding impact, supplying context, prioritising deliveries, and staying informed. Companies that practise active data governance - embedding data stewardship and curatorship activities into business-as-usual data processes - report significant advantages in their ability to use data effectively.

Data Access management is a key sub-component of data governance. Increasingly customers and FSPs share ownership of the data that gets created as they do business together. In some countries (e.g. across the European Union) customers now have substantial rights to their 'own' data and can ask for it to be disclosed and/or removed. Even in countries without specific data protection regulation, there is a growing consensus that FSPs cannot share personal data, even if they have a form of implied consent to gather and create it as part of their business activities. It is therefore best to start out with relatively strict limits on data access within FSPs.

These can only be framed according to individual legal/regulatory contexts (and the individual FSPs/partnerships working within them) but a basic hierarchy might look like this:

Type of data	Accessed by:
• Full transaction/balance history and customer details as shared at time of sign-up for specific products/services • Contact records	• Customer-facing front-line staff • Customer care • Audit/Finance/Legal ➔ Executive Committee
• Unique customer ID + name and basic contact details • High-level customer characteristics from KYC/CIF • Cross-matched external public domain characteristics • Summary business value but not detailed transactions	• Sales and Marketing • Commercial 3rd-party partners
• Anonymised ID but no personal identifiers • High-level customer characteristics from KYC/CIF • Cross-matched external public domain characteristics • Summary business value but not individual transactions	• Data analytics • Product managers/developers • Finance analysts

Source: DMAC team

This hierarchy allows data analysts to use the data in the bottom row with full access to the micro data, enabling them to see the broad data type without seeing specific detail that would allow them to identify the customer concerned and a particular transaction/interaction. This means they can experiment with new anonymised data integrations that might reveal potential new business value. They can do this by changing the base-level data that allows a customer-facing staff member to process and resolve any private commercial matter with an individual customer (and for higher level management to resolve escalated complaints as well).

This opens up the big issue of who needs to know what, who makes sure that data is fit for multiple purposes, and whose priorities set the quality agenda for shared data. This is the focus of the next sub-section.

4.2 Differentiating shared data

Master Data is:

core data within the enterprise that describes objects around which business is conducted. It typically changes infrequently and can include reference data that is necessary to operate the business. Master data is not transactional in nature, but it does describe transactions. The critical nouns of a business that master data covers generally fall into four domains:

1 Customer 2 Product 3 Location 4 Other

Read more

Profisee

'Master Data' is the data that becomes increasingly important as customers do more and more business with an FSP over multiple platforms. Master Data gains value the more consistency it has enterprise-wide. FSPs need to decide which data should be treated as Master Data – which needs to be managed top-down – and which can safely be left in distributed (product, HR, etc.) systems. In the discussion of data access in section 4.1, there are already some indications of where the divide might lie, as well as guidance as to what constitutes best practice in deciding what should constitute Master Data and how it should be managed.

The best practice principles on the overall management of Master Data that we used on DMAC came from the programme's data management implementation lead, Master Data Management (MDM) Ltd. These principles are outlined in a blog and can be summarised as follows[1]:

1. **Establish a business case:** The business case should be tool agnostic and look at the use cases and potential benefit that will be delivered. The business case can then also be used to determine critical capabilities to be delivered by any proposed tool.

1 Blog precis by Gary Alleman of Masterdata SA June 2017 of fuller article in Information Management Kumar, S, '10 best practices for master data management, Information Management, May 2017

2. **Get executive sponsorship:** As with any enterprise project, the correct level of sponsorship is key. Sponsorship must go beyond providing budget – key business stakeholders must be involved in the MDM SteerCo that will drive decision making and resolve inter-departmental conflicts.

3. **Get business involved:** Many of the day-to-day decisions require business knowledge and sign-off. For example, a client may have different telephone numbers in the Sales and the Orders systems. Business must be involved in determining which number is most likely to be correct. Without this active involvement IT run the risk of losing critical information.

4. **Invest sufficient time in planning and evaluation:** A common mistake is to rush the purchasing of a tool. A clear understanding of the business case (and supporting use cases), an understanding of the current state of master data, and fit to existing technology stack should all be considered before selecting a tool.

5. **Institute MDM governance and stewardship:** MDM governance must consider much more than the process for merging or approving duplicates. MDM governance must consider data mappings, decisions around which systems are most trusted (at an attribute level), data quality standards, match rules and much more. The MDM Governance team also brings business and IT stakeholders together to ensure sponsorship and business engagement.

6. **Adopt the right technology and architecture:** MDM can incorporate elements of batch integration, real time integration and even integration to "new" data sources such as big data elements. Decisions on how data will be synchronised back to source must be well governed and tested and may accommodate one or many of these integration strategies.

7. **Define the data quality strategy:** A common mistake is to assume that master data management will deliver quality master data. Instead, poorly planned and delivered MDM can actually make data quality worse. Data standardisation, enrichment, scrubbing and matching strategies must be in place if MDM is to deliver value. Data quality requirements should also be considered when selecting an MDM tool or platform.

8. **Get the right team:** MDM and data quality management are niche competencies and you will probably require specialist help. However, we suggest that you co-source your MDM team – including stakeholders from your business, your IT team and any vendors or systems integrators. This helps to drive business buy-in and skills transfer, assuming that your team put in the time.

9. **Adopt a phased approach:** MDM is a massive programme and can run into years of effort. Break the programme down into small steps that deliver incremental value and ensure that your Steering/Governance Committee are actively involved in resolving issues, and in prioritising each new month's effort to deliver maximum value, based on changing business priorities.

10. **Deliver and communicate incremental value:** Each phase, identified in the 9 above, should be linked to the value generated. For example, if telemarketing campaigns are a high priority, but contact ability is poor, then a focus may be to consolidate alternative telephone numbers for each client and present these as a telesales list. As the next step, one may add email addresses, and so on. The value delivered should be communicated to other stakeholders, who may have their own priorities that will feature in a later phase.

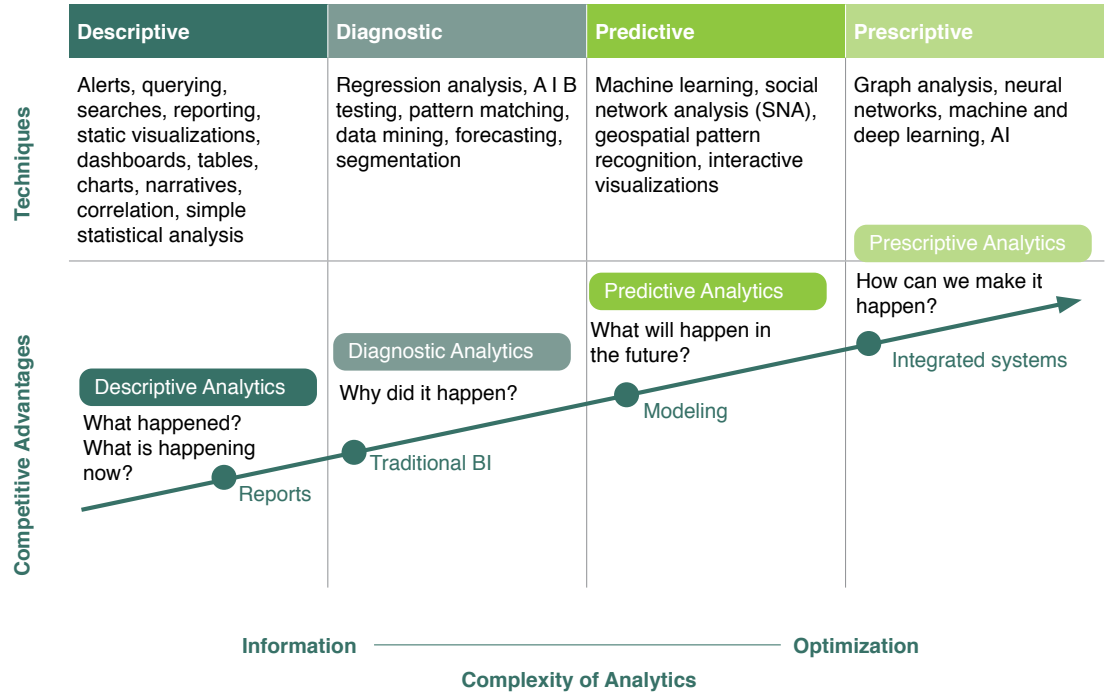
Two key conclusions for any FSP getting started on data integration and deciding on which data to manage centrally are:

1	2
Keep the set of master data that must be common across all systems tightly defined. Not all data has to work in exactly the same way or produce exactly the same analytics in all contexts. However, some data will be absolutely core to the planned integration and must be recognisable across all contexts. Customer data is usually one domain where a lot of data should be consistent across systems but not all transaction data needs to be. There is a visible trade-off between the size of any master dataset and its quality/cost to maintain. There is also a trade-off between the efficiency gains of having consistency across common data items and the efficiency loss of trying to manage all data top-down (which holds back development of new product-level data that may matter only to the business unit charged with delivery of that product but could still be very valuable); and	**Data quality is important → Data lineage is critical.** The maxim that 'rubbish in creates rubbish out' applies to all analytics but the problem magnifies and becomes harder to control in an integration context. This especially applies to Master Data, where the person creating it may have no real ownership of the wider value embedded in it. This means putting real effort into making quality data entry/transformation the path of least resistance. This has to be managed by moving master data between systems with its accompanying data lineage and indeed, making it impossible for any move to happen without the data lineage moving with the Master Data and the lineage being updated automatically for any transformations that happen as elements of Master Data moves from system to system.

The decision as to what constitutes Master Data is governed by the same 'Who really needs to know what?' considerations as already described for data access, but with an additional business agility angle. It is really important to manage systems that directly affect the way a customer is served more for the immediate benefit of the users and the people they deal with on a day-to-day basis, than for higher level functions who may or may not discover hidden value in the data being created. This is where a separate interesting discussion can be had on the type of competitive advantage the FSP wants to get from more use of data – i.e. there is no point rising right up to the top-right quadrant of the IFC Competitive Advantage/Complexity of Analysis hierarchy (see table 3) and next section) just for the sake of doing fancier analytics.

4.3 Forms and formats for integrated data management

The disciplines and priorities of integrated data management apply at any level, but its form can change depending on the defensive/offensive balance taken by the FSP, as described above. Single product systems tend to have structured/pre-defined reports with any other data extraction limited to IT professionals who use query languages (e.g. SQL). Such systems do not tend to lead to good data analytics and have no capacity to address external data. These are typical of low levels of data maturity on the IFC Competitive Advantage/Complexity of Analysis hierarchy reproduced on the next page:



Source: Data Analytics and Digital Financial Services Handbook, IFC

Manual interrogation of product systems creates limited analytics and does not move beyond 'descriptive analytics' on the hierarchy shown above. The next level up is some kind of middleware solution that automates the process of extracting and transforming data so that it can support relatively fixed data analytics, but again almost all of them will be descriptive.

Manual Integration

'In this approach, a web-based user interface or an application is created for users of the system to show them all the relevant information by accessing all the source systems directly.

Middleware Integration

'… acts like a glue that holds together multiple legacy applications, making seamless connectivity possible without requiring the applications to communicate directly.'

Data Warehouses

' … stores a unified version of data extracted from all the source systems involved and manages it independent of the original source systems … include[s an] ability to combine data from very disparate sources (mainframes, databases, flat files, etc.) and to store them in a central repository of data...'

Read more

DATA INTEGRATION NINJAS

Some of the larger FSPs in emerging markets have Data Warehouses. These take Master Data to its limit – almost everything in the data warehouse is a defined (usually single) version of truth. If there need to be **MVOTs** ? these are created by massive transform processes that lodge the different truths in so-called 'Data Marts' that are nested under the Master Data in the main warehouse. In effect, Data Marts provide alternative perspectives on the same underlying truth but that truth is more nuanced than in a pure **SVOT** ? model. Data Marts tend to be subject, transaction or product specific, i.e. Finance, HR, Home loans etc.

Data analysts are allowed access to 'curated' data where the truth they are allowed to see has been tailored to pre-specified needs and their access controlled according to those needs. In addition, because of the large effort put into systematising the 'extract and transform' processes that create the loaded, curated data, an extensive 'schema-on-write' ? exists to describe what the data is and its lineage. This helps with preparation of 'defensive' analytics, but it also creates some space for business users to design their own exploratory analysis of a

more 'offensive' kind: such as better customer segmentations and more use-case analysis for different customer segments (the platform for so-called AIB analysis). These are examples of diagnostic tools that get an FSP into the 'diagnostic' level of the IFC Competitive Advantage/ Complexity of Analysis hierarchy shown above.

There are, however, limitations on how well data warehouses can support genuinely exploratory analytics - the 'prescriptive' box of the IFC hierarchy – and that relates to the speed with which very large data sets can be mined within 'schema on write' ⓘ relational databases. There is a growing trend of lodging different elements of an integrated data set in different locations so that can be processed in parallel. The data analytics can then find relations that need to be retrospectively justified by a 'schema on read' ⓘ. The challenges involved in this are well described by BlueGranite:

Data Lake ⓘ + Data Warehouse: Complementary Solutions

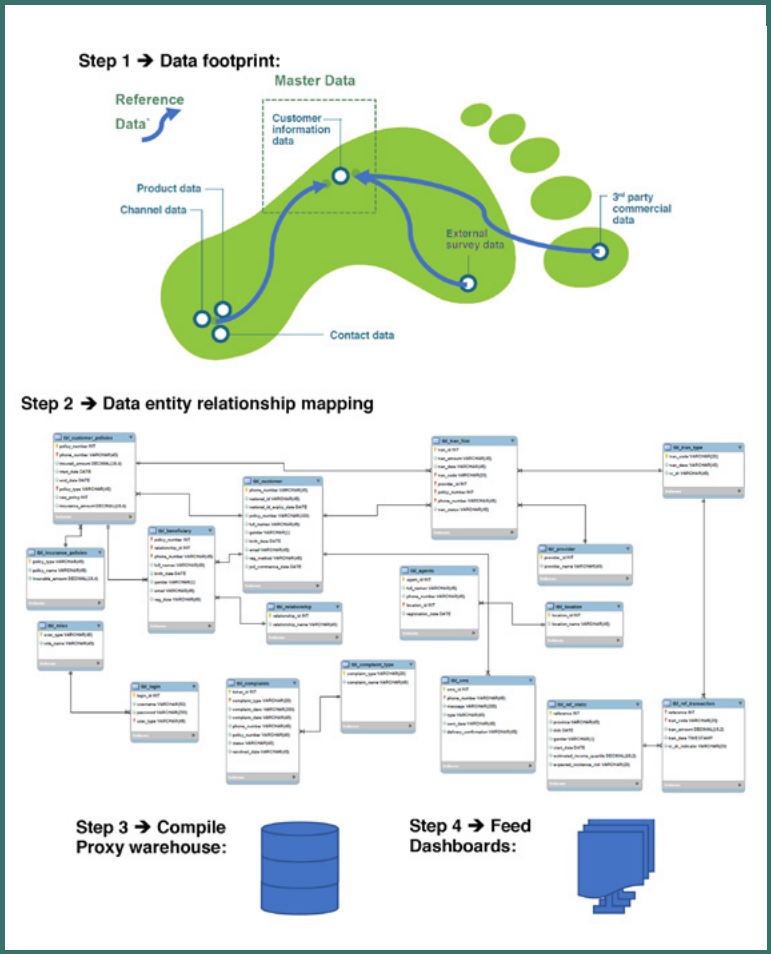
'Different characteristics lead to an inverse relationship between a data lake and a data warehouse. This inverse relationship is the precise reason why a data lake and a data warehouse are complementary solutions.'

Read more

Box 25: DMAC experience with intermediate IT solutions to support data analytics

All but one of the DMAC partner FSPs started at the 'manual' or 'middleware' integration levels described above: only one had a full data warehouse. We supported our partners to move beyond manual data integration.

With one of our insurance partners, we chose a middleware approach but focused on merging in third party commercial data and some external public data on in-patient incidence risk (the product was a hospital cash plan and it was important that the business dashboards could alert our partner to any changes in behaviour that were occurring because previously uninsured people were suddenly getting access to cover via their mobile phone). Our partner mapped all the relevant internal data they had and added what they could realistically get from their commercial (MNO) partner, as well as relevant data from a public health survey. We then worked with them to create the relational data that describes how the different data sources relate to each other. This was turned into a data-entity relationship map that captured what data was available, where it was stored and how it could be linked together. That mapping allowed a proxy data warehouse to be compiled as a single relational database separate from the source systems and holding a mix of internal policy data, third party mobile money data and limited external health data. The FSP can now use this database to feed business KPI and risk control dashboards.



Source: DMAC team

"To build a data-enabled organization, a new approach is needed in order to make it easier for people to find, consume and collaborate with data to work towards data intelligence. True data intelligence means any data citizen can uncover and extract the value in data.'

Read more

collibra

4.4 Making change happen – the data-enabled organisation

A **data strategy** is essential to bring everything together into a coherent framework and agree a realistic focus for the effort in order to get more value out of data by improving levels of data integration. The strategy should be a high-level statement of the FSP's strategic intentions for enterprise-wide data integration and at a minimum should cover:

- an affirmation by the FSP's Executive Committee of the importance of data to delivering business outcomes, based on senior management's identification of the reasons why the enterprise needs to use data better **(see section 1)**;
- an identification of the main data assets of the FSP and the main elements of what the Master Data list must include;
- a recognition of the main data challenges faced by the FSP and a set of priorities for addressing them; and
- a commitment to data quality and security, plus an outline of the governance framework that will deliver this.

The main purpose of the data strategy is to engineer an enterprise-wide drive to improve the use of data. The 'people' aspects of this are well described in an e-book from Collibra, a technology partner of DMAC consortium partner Master Data Management Ltd.

Having mobilised a data integration team that mixes business users and IT professionals the focus needs to be on developing individual **Data Policies** for each identified data asset. These need to work at four levels as shown in the table below:

1 Business layer					
Data asset profile/ needs	Data owners/ champions	Data creators	Data users secondary	Data managers	Data Governance
2 Metadata and quality layer					
Data context/ consistency	Data integrity	Data validity	Data accuracy	Data completeness	Data relevance
3 Data asset protection layer			**4 Data asset build layer**		
Data security	Data access	Data recovery	Data challenges	Data asset development	Data asset resourcing

Source: DMAC team

Having set a business-led framework for deciding data-asset development priorities, building human capacity is often at least as important as new systems investment. This can be done through third party local service providers who specialise in data management **(see section 5).** DMAC consortium partner, Master Data Management Ltd., also runs an online **certification programme** that maps well to the IFC competitive advantage/analytical sophistication hierarchy used in **table 3.**

Wrap up

This section should have provided you with the tools and industry approaches to help you make business-driven data integration an enterprise-wide approach. Hopefully, you should also now have a clearer understanding of some of the key issues that will need to be addressed and the data disciplines that should be developed along the way to becoming a genuinely data-enabled organisation. To help you drive this process, you have also seen examples of strategic and policy approaches and some of the terminology used to describe different levels of data integration.

Further reading

Part of the approach taken in this section only has been to point you towards different possible commercial sources of information about the latest state of play in a fast-moving industry. These have been chosen for their relevance but they are not definitive – over time they will be overtaken by new developments and new understandings of established approaches. There is no substitute for working with third party data management service providers (see section 5) and/or active web-searching to address a specific data integration challenge. Materials are generally provided for free in return for registration with the provider. The hidden price is an element of marketing push, both within the material itself and directly from the provider after registration, but it is relatively easy to discern real content from pure marketing push.

The materials we have referred to in this section are:

360-degree customer view

A summary of the context and tools used for 360-degree customer views.

Insights for Professionals, August 2018

6 vital data management best practices to help ensure that data management strategies are meeting the needs of today's demanding businesses.

'Advanced Data Lineage: The #1 Key to Removing the Chaos in Modern Analytical Environments, Precis of Imhoff, c Ph.D., October 2018

This whitepaper examines the capabilities of advanced data lineage and describes how organisations should begin their journey into solving their chaotic analytics environment by choosing a modern metadata management technology.

'The What, Why, and How of Master Data Management', Approved republish/ update of Haselden, K and R Wolter, 2006

This article explains what MDM is, why it is important, how to manage it and who should be involved, while identifying some key MDM management patterns and best practices.

'Data Integration Techniques and Their Challenges', Kumar, G, Feb 2015

This article explores ways in which data can be integrated and ways to overcome design and implementation challenges.

'Data Lakes in a Modern Data Architecture', Blue Granite, June 2018

This e-book explains the principles of modern data architecture and considerations and tips on how to get started with creating a data lake.

'Creating a data-enabled organisation', Collibra, July 2019

This e-book presents step-by-step tips on how to create a data-enabled organisation.

5 Forming partnerships

Background

From a data perspective, partnerships offer the opportunity to expand the sources and use of information feeding into the design and delivery of more inclusive financial products. Partnerships almost always start with a product idea where one of the parties involved has a product that it feels is needed by more people than it can reach through its traditional delivery strategy. Alternatively, partnerships happen where a large networked organisation sees its user-base going unserved because traditional FSP delivery channels do not reach them well.

Partnerships create scope for synergies between institutions to enrich the value of the evidence on product performance, transaction patterns and customer characteristics. Partners can work together on a value proposition that makes a product or service that has not previously been available to a segment of the population begin to look appropriate and worth consideration.

However, forming effective partnerships is not a straightforward process and many potential partnerships fail to materialise. Sensitivity of data, and/or quality and timing of information transfers may hinder or protract negotiations and prevent the full benefits of data from being achieved. There also needs to be a clear win-win business case for all parties involved. Business case planning almost always has to move up a level because all parties have to think of the impact of each element of the joint design on their business bottom line.

In this section, we highlight how data from various sources can be linked to build value. We discuss how decisions on partnerships can be embedded in institutions' business models and what it takes to find a mutually beneficial proposition. We then describe a practical application for linking up data inputs in order to improve customer engagement. Finally, we offer some basic tips on how to start thinking about outsourcing solutions and identifying prospective partners.

Objectives

By the end of this section, you will be able to:

- identify areas of your business where partnerships might be required and why;
- identify the value drivers, business case and value proposition for working in partnership with others;
- think through the implications of sharing data with partners; and
- have some ideas of how to identify potential partners within – and possibly outside – your market.

Practical application

Generally, data-driven partnerships take place where there is an unmet or poorly served need obvious in a segment of the population that is known to be creating a digital footprint in other parts of the ecosystem. Examples are:

- trades that have started to formalise and (i) have organised frameworks that govern the ability to operate in the market (licensing bodies, industry associations, etc.) and (ii) the activity is increasingly taking place over some sort or organised financial framework (a value chain, mobile money, etc.);
- segments of the population characterised by measurable common social or health needs where there is a financial dimension to those underlying needs being met (paying for school fees, covering treatment costs, setting up home, etc.);
- social interventions that bring together marginalised groups so that they can better self-organise to improve their lives and where lack of access to finance is a part of a wider lack of access to the formal economy and public services; and
- self-organising groups over social media to facilitate any of the above (community groups, church groups, trade groups, etc.).

In all these cases, the starting point is to think about where the accumulation of data is happening that will allow a provider to understand how people in the target market live their lives, where they live and work, what matters to them, how they make their money, how much money they have, what they use it for and how it moves.

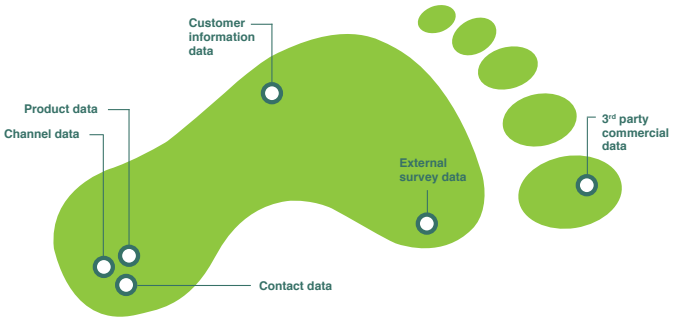
Data mapping to illustrate the potential for profitable sharing of data

As already discussed in **section 1.1**, there is a wealth of data available to FSPs which can be split into three generic categories: (i) internal data, (ii) publicly available external data, and (iii) commercially sourced third-party data, as shown in the table below.

Internal data	Publicly available external data	Third party commercial data
Customer data (CIF/KYC)	Census data	Channel data (e.g. MNO)
Product data	National household surveys	Credit Reference Bureau data
Channel data	National and international financial surveys (e.g. FinScope, Findex, etc.)	Social media
Customer feedback/ complaints (e.g. from call centre)	Industry analysis	Specialist analysis and research
Primary customer research	Market research	Satellite imagery
Management reports		GIS data

It is unlikely that a single FSP will be able to fully own and analyse the entire spectrum of data that can add depth to their level of customer understanding but it is possible for an FSP seeing an opportunity to partner to make a start at illustrating how shared data can build value for customer and partner-providers alike. There are two tools described in **Part 1** and **Part 2** of this toolkit that help with this and they are:

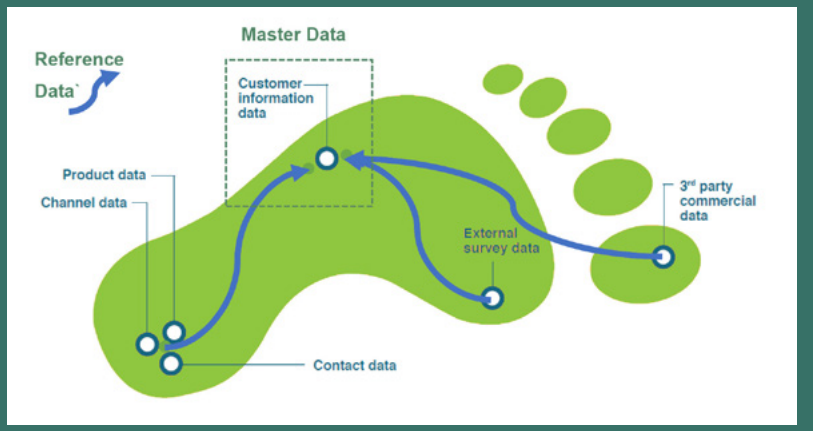
- **Data Footprint:** this can be used to review the possible data sources available to a partnership that may reveal something about how and where the target customer can be reached (and all the other factors described above) that shape the value proposition that the customer needs to engage with and that partners work together on to deliver profitably. This could involve:



  - an MNO attaching social characteristics taken from national or private survey data to a profiling of its user base to illustrate potential market demand for delivery of new client-centric value-added services over mobile money; or
  - it could be a specialist provider showing an unmet, quantifiable need at different points along a socio-economic profiling of the likely user-base of a wide-network organisation such as an MNO, industry body, NGO, etc.;

The lead FSP in the partnership needs to start thinking about the likely common social markers that will allow data from different sources to be linked (region, urban/rural, age, gender, etc. plus maybe an income proxy).

Box 27: Data footprint in a partnership context

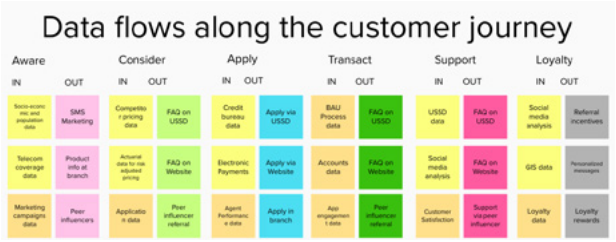


For all DMAC projects we used a data footprint to think about possible data sources that might help shape a better value proposition for customers. For those projects where our partner FSP was working in partnership with another organisation, we had to think particularly carefully about how and where data about the same person (or sort of person) could be found and linked together. We started with sticky notes, describing the data our partners were interested in and placing these on large-print footprint templates according to the type of data and the system/source holding it. We then worked out how the data could be linked – e.g. through shared customer IDs and attached charateristics (age, gender, region, etc.), possible markers we could observe in actual customers (age …) that mapped to the demographic roster in public domain data sets, proxies for data that was missing (e.g. ranked use of mobile money use as a proxy for income/spending-power).

Ultimately, these linking markers become part of the **reference data** that captures how data items link together and the **data lineage** for each stored data entity which captures the linkage process that brings those various entities together in a sufficiently related form to be of use to the product design and delivery management process being co-developed. Finally an agreed set of **master data** for the jointly delivered product or service had to be framed and its reference data and lineage had to allow each partner to match a shared customer back to their own customer information files and then on to internal transaction data that they will only ever keep on their private systems. This is why **data quality** and good quality **data entity relationship mapping** are so important in a partnership context.

Source: DMAC team

- The **Data-linked customer journey** should be used to describe how the partner organisations need to pass data across system and organisational boundaries so that the value proposition does not collapse each time the customer moves from dealing with one part of the partnership to dealing with another. This needs to be planned up-front (because data-sharing comes with legal/ regulatory constraints and commercial sensitivities attached). It needs to be managed actively and continuously refined as a new product or delivery-format is brought to market and it needs to be captured in reporting frameworks. All of the best-practice data management disciplines (quality, lineage, access, master-data, etc.) described in section 4 need extra focus as they matter even more to data integration across, rather just within, individual organisational boundaries. Part of the necessary preparation for partnership is being able to make a credible **data governance** offer that works for all parties.



Box 28: Use of partner data in customer journey mapping

One of DMAC's insurance partners wanted to deliver a white-labeled hospital cash plan over mobile money. The insurer was in the background providing a value added service (VAS) marketed under their partner MNO's brand. This was accessible directly from the mobile money menu but our partner was having to undertake the more complicated work of turning initial interest into live cover and managing claims paid out as well as prompting for renewals. To avoid overloading the mobile money (USSD) menu, the potential customer had to be passed between the MNO, the insurer and an outsourced call center provider that the insurer was going to use to get the extra data needed to create a policy (lead policy holder, beneficiaries, next of kin, confirmed demographic and ID data, etc.). This meant crucial control data would be held on – and needed to be linked across - multiple systems. The DMAC team helped the insurer to map all the data required as inputs into each stage of the **customer journey** and then map this to the systems on which the data was held, and the **reference data** that captured its linkage across systems. The chart below shows the main data items mapped to each stage of the journey.

DATA IN:

Broadcast above-the-line (Radio/TV/print, Bill board/street sign, Bulk SMS, pop-ups)
Targeted below-the-line (Agent/Sales-point promotions
Same data - start/end date, geographical coverage, volume, monthly spend

DATA OUT:

Broadcast above-the-line - Awareness tracking
Targeted below-the-line - Has to be tracked via onboarding

BY CHANNEL: USSD/Call center

DATA IN:

Requests with date and amount + demographic benchmarking from ZK user base/population

DATA OUT:

Drops by stage of request and date
Completions by type of life covered (parent-child)

DATA IN:

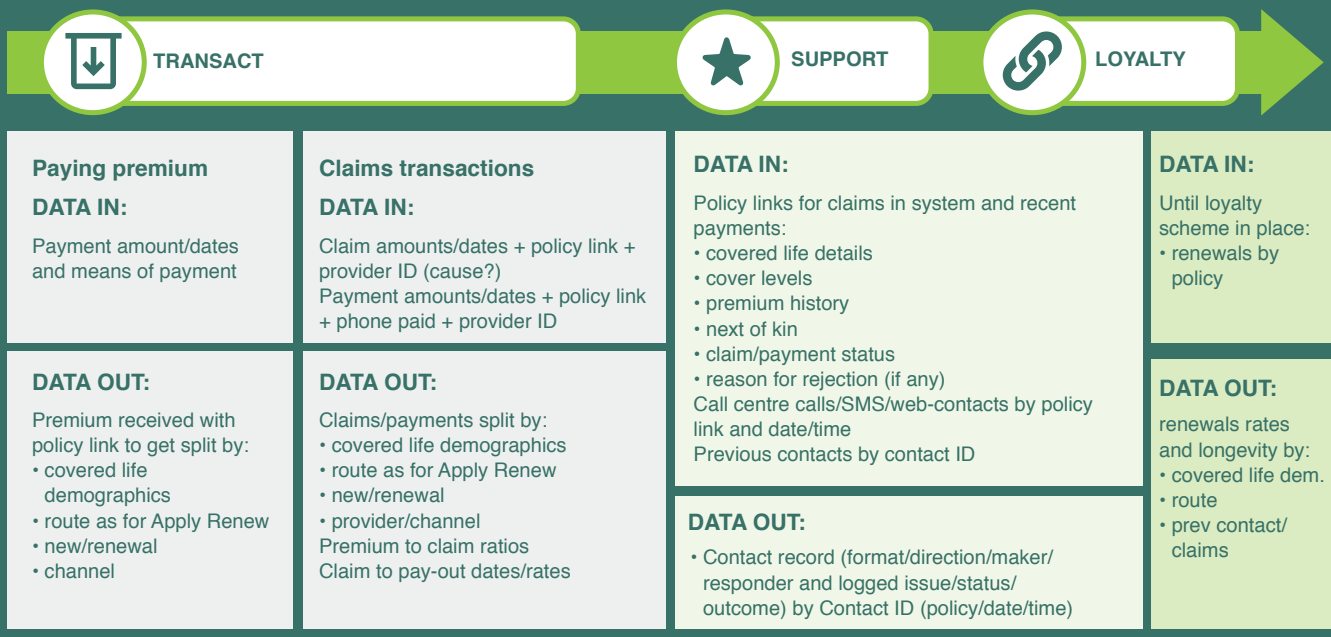
Renewal prompts by policy ID and date

DATA OUT:

Non-responses/Drops by policy ID and renewal date and time gaps from renewal prompt

BY DEMOGRAPHIC: Age/Gender/Region + ??? income marker

Box 29: Use of partner data in customer journey mapping



Source: DMAC team

Drivers of value creation

Like other commercial actions, decisions around data, including partnerships, are based on the value that they bring to an institution. In other words, partners need to establish whether there is a business case for a specific course of action, and for partnering.

Box 29: Two-way business case negotiation

One of our insurance partners in Tanzania wanted to relaunch a micro-health plan that was failing to sell at the volumes needed to make business case for both the insurer and its partner distributor. The insurer had chosen a specialist distributor in the micro-health insurance market that was known for its relatively advanced level of digitisation and its hospital claims management capacity.

The potential shared business case was originally thought to exist with the distributor providing its specialist capacities and systems to support all of the insurer's micro-health plans in return for marketing support for spreading the distributor's version of the plan to other regions of Tanzania.

The DMAC team helped both sides model the cashflow implications of different partnership revenue and cost-sharing models to see if there was a sustainable commercial outcome that would enable the joint investment to be made. In the end, no agreement could be reached on the original proposition but a successful joint business case was formed around a service provider model (where the distributor was paid for the supply and operational support of the specialist systems). This model is now going live in the market.

Source: DMAC team

On the **DMAC programme**, we worked with three types of FSPs: (i) commercial banks (ii) insurance providers and (iii) fintechs. Below, we present a summary of the value (and cost) drivers for each type of institution.

Box 30: FSP Value drivers

Commercial banks

- Number of customers and/or accounts opened
- Size and frequency of transactions
- Industry position in serving target market
- Observed customer activity rates
- Expected revenue streams (fees, commissions, interest, etc.)
- Possibility to cross-sell other products and services
- Implementation costs (systems work, channel costs, sales & marketing, interest expenses etc.)

Insurance providers

- Number of policies issued
- Premium and cover levels
- Industry position in serving target market
- Policy renewal rates
- Documented incidence risk relative to policy premiums
- Expected revenue streams and revenue split agreed with channel providers
- Operating and insurance costs

Fintechs

- Number of customers/accounts/policies registered on the platform
- Size and frequency of transactions
- Industry position in serving target market
- Fee or tariff structure agreed with partners (product owners), per transaction or product sign-up
- Monetising opportunities for data with cross selling institutions (e.g. credit, insurance, pensions)
- Operating and channel costs

Source: DMAC team

The likely drivers of value creation are relatively standard within different provider models and can be used to form a proposal to a potential partner even if a full business case for the potential partner cannot be prepared ahead of detailed negotiations.

Stakeholder identification

Choosing the right partner may be straightforward if the FSP has a specific business need and is already aware of a partner operating in the market who is well placed to meet that need. However, in some cases, identifying high value partners for the development or delivery of a product will depend on context-specific requirements and constraints. This makes the process difficult to predict. Nevertheless, adopting a pro-active approach to scanning the market and engaging with potential solution providers offers good starting point.

Box 31: Scanning the market for partners

In order to encourage the formation of possible partnerships between DMAC partner FSPs and third party local service providers (both during and beyond the lifetime of the programme), the DMAC team undertook a thorough market scan of data solution providers in each of our three project countries. We relied on local expertise to collect information on the following categories:

- Market research firms
- Think tanks
- IT services/data management firms
- Innovation hubs
- Consultancies focusing on product development

Having scanned the market, we were able to point our partner FSPs to particular service providers - who they could meet particular needs - that they may not already have been aware of in their own markets. Under the programme, we also worked with selected service providers in each project country to build their capacity to offer their services to FSPs.

In general, we found that Tanzania had a rich market of local service providers, with a number of well-established research firms and consultancies and some data management services available. We found it more challenging to identify suitable local service providers in Zambia as many of the firms providing services to the Zambian FSP market are South African firms: this can make things more complicated due to the need to share data across borders and under different data protection regulations. Sierra Leone's financial services market is more nascent than the other two countries, and this is also the case with the service provider market, although several vibrant fintechs are emerging and an active fintech association has been formed.

Source: DMAC team

Understanding the existing skills and knowledge in the market is a useful step in identifying potential partners and determining possible applications for data beyond the FSP's existing capacity. We would recommend establishing which service providers others in the market are working with and undertaking internet searches to map relevant service providers in your market. The Bankers Association/Insurance Association or Fintech Association may also be able to provide you with suggestions of potential service providers. Taking part in Communities of Practice (CoP) can be an excellent way of getting recommendations of/networking with service providers in your market. Examples from the DMAC focus countries include:

Sierra Leone: Data Management and Digital Financial Services Community of Practice;
Tanzania: Data and Innovation Community of Practice;
Zambia: Association for Digital Finance Practitioners (ADFP); and
Zambia: Technical Advisory Group (Insurance).

Another possible solution would be to reach out to established regional or international providers. This can be a viable alternative where specific skill sets cannot be sourced locally. However, it would also carry an added cost element that would require a very clearly articulated value proposition. Given the recent growth in the focus on data and the expansion in the availability and diversity of local solution providers, it seems clear that the foundations are being laid for locally-sourced and sustainable data solutions in individual country contexts.

Wrap up

This section explored how partnerships can be formed to enhance an FSP's business proposition and potentially improve its use of data. It looked at why partnerships can be useful and the benefits they can bring, but also explored the potential pitfalls around data sharing.

Decisions on data, including partnerships, are commercial in nature and need to be determined by their impact on the FSP's value drivers, including revenue and cost projections. For a partnership to emerge, institutions must agree and buy into a mutually beneficial value proposition, also understanding the synergies that data offers in terms of enriching customer records for all parties involved.

The identification of high value partners will depend on context specific requirements and constraints. Nevertheless, adopting a proactive approach to scanning the market for potential providers and engaging in industry networking events can be a good starting point in determining possible data applications beyond an institution's own capacity. Given the recent expansion and diversity of local providers, it seems the foundations are being laid for the sustainable delivery of data solution in individual country contexts.

Could your FSP benefit from working in partnership with others? Complete the data readiness checklist in **section 2.2** to find out.

Partnerships will require excellent data management practices and processes. Read more about data management in **section 4**

Are you thinking of designing or redesigning a product with a partner organisation? Read more in **section 3**

Further reading

Making Microfinance Work – Managing Product Diversification

Section on building and managing partnerships (page 464 – 491)

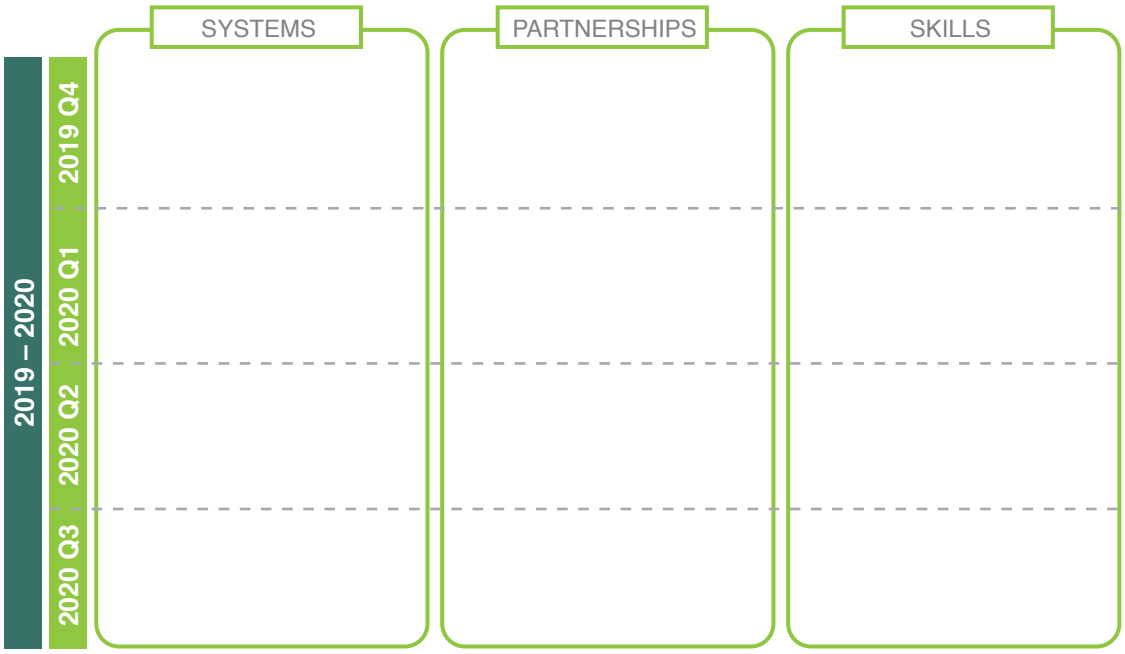
This textbook, designed for middle and senior managers in microfinance institutions, is relevant for institutions that have already diversified and are looking for ways to manage their diversification more effectively, as well as those that have not yet done so and are looking for guidance on where and how to begin.

6 Next Steps

We hope you have found this toolkit useful and feel well equipped to take your FSP to the next level in using data to develop customer-centric products and services.

In order to bring about change in your organisation you will need to secure the buy-in of others, especially senior management, to the strategic use of data. Why not encourage your colleagues and managers to explore this toolkit, or set up a meeting to pitch the case to them for using data more strategically?

Now you have used the toolkit, we would encourage you to revisit your answers to the data readiness checklist and devise an action plan to make improvements in those areas in which your organisation scored the lowest. You could use a simple framework like the one below to identify the systems, partnerships and skills you need to put in place over the coming quarters in order to start using data more effectively:



Source: Accion Global Advisory Solutions

We have included the workplan template we used with our DMAC partner FSPs in our set of tools. This shows the different steps our partner FSPs followed to conceptualise, design, build, pilot and launch their products. Why not adapt this workplan and use it for your FSP to map out the activities and responsibilities required to implement a data-driven project?

Tool: project workplan template ➔

Finally, thank you for using this toolkit. We hope you have found it useful. We would welcome any feedback you have on the toolkit and your experience of using it. Please send your feedback to dmac@opml.co.uk.

Annex

Collection of tools featured in the toolkit

Tool: Setting KPIs – return to main toolkit

Once you have determined the business questions you want to try and answer you need to:

- identify what data you have or can obtain that can help answer that question;
- consider what preparation, if any, needs to be done to get the data ready for analysis; and
- conduct analysis and validate results with business users and end customers

A good starting point can be to conduct exploratory analysis to look for interesting patterns in existing data. A business owner or analyst may notice something in a monthly management report or branch visit that looks odd, for example, a sudden drop-off in renewal rates on a particular product at a particular branch. By digging further into the data, correlations may be found. This approach becomes second nature for organisations which have embraced the use of data.

See table next page.

ROI drivers	Output	Outcome	KPI	Description
Increased revenue through better understanding of customer segments and needs	Personalized customer engagement at each touchpoint	New customers reached	Number of segments defined, number of products (vis a vis relative usage)	Sourcing, analyzing, and using data effectively yields insights into customer behavior and preferences (channel usage, dropoff and challenges, seasonality, transaction velocities by time period, etc.), that the the organization can leverage to provide personalized messaging at each touchpoint in the customer journey, thus serving new and existing customer's specific needs better. This will drive up customer activity and therefore increase revenue.
		Increased takeup/activity	Activity ratios: customer growth, transaction value/volume, avg. savings/loan balance, repayment rate, cross-sell, interest income, fees, and commissions	
	Targeted product design	New customers reached	Number of segments defined, number of products (vis a vis relative usage)	The same insights can be used to enhance existing products or develop new products to better meet customer needs and preferences. Data can help shorten the product development cycle and make it more iterative. Relevant products drive customer activity and revenue.
		Increased takeup/activity	Activity ratios: customer growth, transaction value/volume, avg. savings/loan balance, repayment rate, cross-sell, interest income, fees, and commissions	
	Optimized channel mix	New customers reached	Number of segments defined, number of products (vis a vis relative usage)	Matching product distribution strategies to customers segments' channel behaviors and preferences will increase revenue per channel by enablling access to more customers and increasing activity of current customers by enabling them to transact when, how, and where they prefer. In cases where agent networks are used, driving active customers to agents will increase agent activity and loyalty, increasing revenue from both agents and customers.
		Increased takeup/activity	Activity ratios: customer (AND AGENT) growth, transaction value/volume, avg. savings/loan balance, repayment rate, cross-sell, interest income, fees, and commissions, usage/channel, active agents	
	Improved customer relationship	Increased customer satifaction and loyalty	Retention rate, customer lifetime value, NPS, customer satisfaction survey	Identifying customers in the unserved and underserved segments, developing relevant services for them and continually engaging them will increase uptake of service offerings, satisfaction, and loyalty. Increase loyalty of existing customers – as customers find the services more useful and the provider more engaging, they would tend to stay with an engaged provider; thereby reducing 'product-related churn' of customers, wherein the customer moves from FSP to another FSP for specific services. Customers that enjoy a more relevant, personalized experience will continue to be active and use more products over time.
Decreased costs through improved customer lifecycle management	Targeted acquisition strategy	Reduced CAC	CAC, conversion rate, organic marketing	Using data effectively and profiling customers against products proactively to addressing prospects digitally (SMS, notifications, social media campaigns, etc), can help better target existing and potential new customer segments to which key products can be offered dynamically. These approaches will help reduce customer acquisition costs, for example, through automation of processes, such as leveraging data from 3rd parties to instantly verify customer details.
	Enhanced approval and analytics process	Reduced portfolio risk management costs	Approval rate, renewal rate, % reduction in PAR, write offs, risk losses, monitoring and reporting costs (time spent)	Using data effectively can help build profiles (for example based on customer activity and sector), dynamically in many cases, against which prospective customers can be analyzed, helping the organization better manage pricing and risk. Tracking customer behavior can help predict the propensity to default on an obligation thus improving delinquency by proactively managing risk and improving credit decisioning. Loyal customers are more likely to repay their loans enabling fast-tracked policies for renewals.
	Improved disbursement and repayment process	Reduced channel operating /agent management costs	Operating ratios: TAT, cost/channel, account servicing costs, % reduction in reconciliation and settlement costs (time spent)	Trapping data at the right points along the user journey can help ensure the optimal design of channels mix and reduce operating costs of low-usage channels through improved customer lifecycle management (KYC, account servicing, issue resolution, etc.) and savings due to use of digital channels. For example, better monitoring of preferred channels (mobile, agent) allows optimized channel mix, reducing operating costs. In cases where agent networks are part of channel mix, proactive monitoring and analytics can lead to improved agent recruiting, performance management, float management, issue resolution, etc.
		Reduced portfolio risk management costs	Approval rate, renewal rate, % reduction in PAR, write offs, risk losses, monitoring and reporting costs (time spent)	If customers can repay through preferred channels, PAR, write offs, and risk losses may decrease.
	Targeted collection strategy	Reduced collection costs	% reduction in collection costs	Tracking customer behavior can help predict the propensity to default on an obligation, thus reducing cost of collections by optimizing activities of collection agents to focus on high risk customers.
	Improved customer relationship	Cost effective customer service	Decreased turn around time for issue resolution, % increase in successful issue resolution, PAR, retention, churn, renewal rate	Proactive monitoring and analytics can lead to improved issue resolution and customer support. Loyal customers are more likely to repay their loans and use more products.

Tool: data inventory – return to main toolkit

The data inventory should document key information such as:

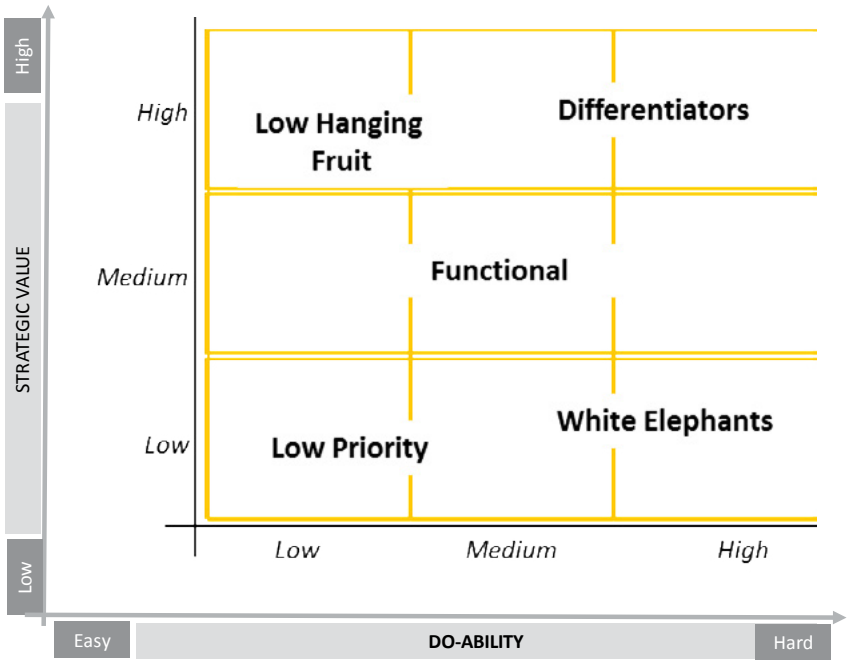
- Data source
- How the data is collected
- How the data is stored, and in what format
- How it is extracted
- The data 'owner'
- How the individual data entities need to link together to make them analysable
- How the data is best analysed

After completing the data inventory, consider what other data you could potentially capture from your internal processes that you are not currently capturing.

Some examples of data your FSP might look at when developing a new product, or improving an existing product are:

- **Customer demographics:** Are existing customers with certain demographics more likely to use the product? Do different demographic groups exhibit different behaviours when using the product? What characteristics seem to be the big differentiator between use/non-use? What can external survey data tell you about why those characteristics might make a difference?
- **Geographic:** Are customers in a certain region more likely to use our product? Or are our marketing efforts more effective in one region over another? Does external survey data point to factors that differ systematically by region that could logically be affecting take-up or use?
- **Time period:** Are there particular times of the year, month or week customers use our products more? Are marketing campaigns effective in driving customer acquisition and usage? Does external survey data point to seasonal factors that could logically be affecting the timing of take-up or use?
- **Customer journey:** What are the key points of customer interaction with the product that we already capture in our own systems data (onboarding, transactions, support, etc.)? Does this tell us anything about where we could profitably focus on to improve the customer experience? Does the mix of internal and external data tell us anything about how we can improve our channels strategy?

Tool: prioritising customer segments – return to main toolkit



Source: Accion Global Advisory Solutions

'Strategic value' considerations may include whether the target customer segment will contribute to the mission of the FSP in terms of social impact (e.g. whether clients will be able to manage their financial lives better) and/or whether there is a business case for serving that segment (e.g. the average potential savings balance for deposit accounts). 'Do-ability' considerations may include capacity (can we reach this segment today with the people, systems, and resources we have easily?), cost (how expensive will it be to reach this segment), and partnerships (do we need and understand the nature of partnerships to deliver this service?).

The framework gives users the opportunity to prioritise between different types of market segments:

- **Low hanging fruit** are segments of high strategic value and who are easy to reach. It means customer satisfaction can be brought about with limited resources and time commitment and can give the FSP a competitive edge by attracting large numbers of customers and generating revenue;
- **Low priority** segments are those which also require limited resource commitment but are not considered strategically important to the institution. It is unlikely that an institution would be willing to put a significant amount of effort into capturing these customers;
- **Functional** segments also represent limited strategic value but may be important to ensure the efficiency of the business;
- **Differentiators** are segments that can be attracted in large volumes, drive revenues and reduce costs of operations in the long run, but which require a significant commitment in terms of time and resources to capture; and
- **White elephants** are segments that bring little value and require a lot of time and effort to capture.

It becomes clear that the desired operating space lies somewhere in the low hanging fruit/ functional/differentiators market space. Depending on the institution's market position and growth strategy, an FSP will likely choose one or more products targeting this space to develop further.

Tool: customer persona template – return to main toolkit

Customer persona template

FULL NAME

Draw your customer here

A quotation that accurately depicts your customer's personality

Age: 1-100
Dependents: 0
Location: City, County

Occupation: Job title, Industry
Education: Education level
Income: Income level

PERSONALITY

Financial Literacy — Low Medium High
Tech Literacy — Low Medium High
Social Network Usage — Low Medium High
Financial Product Usage — Low Medium High
Usage of Channels — Low Medium High

GOALS & ASPIRATIONS

- What goals does the customer hope to achieve
- Are there any tasks that needs to be completed?
- Life goals to be reached or experiences to be felt?

CHALLENGES

- What are the customers biggest pain points, challenges?
- What frustrations does he/she want to avoid?
- Any products/services they need but don't exist?

BEHAVIOUR

- What are your customer's purchasing, borrowing and savings habits?
- What type of technology does your customer utilize?
- What type of financial products does the customer engage with, and how?

NEEDS & ATTITUDES

- Most important product needs and use cases
- Prioritize price vs. quality vs. convenience vs. service, etc.

INFLUENCERS

- Who are the biggest influencers for this customer

OPPORTUNITIES

- What could your FSP offer this customer based on their profile and needs? What could this customer benefit from (i.e. new products/services)?

Source: Accion Global Advisory Solutions

Tool – market research and customer understanding template – return to main toolkit

DMAC/DataDisrupt

DATA MANAGEMENT AND ANALYTICS CAPABILITIES PROJECT

Market Research and Customer Understanding Template

Step 1: Determine your research objective

The scope and structure of your market research and customer understanding should be driven by the problem that you're trying to solve. Carefully consider your product concept – what information do you already have? Where do you have gaps or assumptions? These could be high level (overall product value proposition, market positioning, competition), or about specific needs and preferences of your target segment (will they use a certain delivery channel? Will a marketing message resonate? Is the product structure appropriate?) If you don't yet have a product concept, broader market research can help to surface potential innovation areas that meet customer needs.

Step 2: Review existing institutional and industry data

If your institution has already been serving your target segment, key information can come from analysing internal data. Look at demographic, behavioural and transaction data – where are the majority of your customers? How often and how much do they transact? What channels do they use most? These trends can surface valuable insights to inform new product design. If you're serving a new customer segment, consider industry or national data sources that may include statistics on account coverage, digital and financial literacy, smart phone penetration, and other important factors.

Step 3: Determine the right customer understanding tool

The right customer understanding or research tool will depend on your research objectives, budget, and where you are in your product design journey. The table in Appendix A, excerpted from UNCDF and BFA, outlines a variety of qualitative and quantitative methods, with pros, cons and key considerations for each.

During initial definition of the product concept, qualitative in-person research is particularly critical – we recommend setting up 10-12 individual interviews with a diverse spectrum of users in your target segment. These one hour interviews offer a valuable channel to gain initial candid feedback on your product idea, test your value proposition, and deepen your customer understanding. Insights can be supplemented by broader, quantitative research studies later in the process, particularly when considering go-to-market strategies.

Step 4: Select your questions

The number and type of questions you ask will depend on your research objective and tool; questions look to explore the client's family, work and financial life (including mapping assets, income and expense flows), experience with financial services, usage of different channels, and overall needs, preferences and aspirations. Appendix B includes a discussion guide with sample questions for these different elements. Tools like an empathy map or scenario cards can be used to help structure the conversation and surface priorities. It's also helpful to share a rough prototype of your product concept (storyboard, mock up) to get initial reactions and ideas to the proposed idea and customer journey. Be sure to carefully test your product assumptions, especially those that carry risk and will be difficult to pivot – for example, comfort with and willingness to use a digital channel.

Step 5: Execute research and analyse feedback

Research synthesis and analysis is the most important part of customer understanding, and critical to draw the right conclusions. Shortly after completing the research, the team should review and organize all data, look for patterns and themes, identify and surface insights, and build recommendations. CGAP's Customer Centric Guide offers several recommendations on tools and processes for analysing feedback and generating insights.

Appendix A: Types of Research Methods[1]

Qualitative – Interviews and Focus Groups

Interviews

Types:

- In-depth: Generally takes 60 to 90 minutes. The interviewer goes in with a set of mainly open-ended questions to be answered. Ideally held in the person's home or place of work, which allows the interviewer to observe their environment and makes people feel more comfortable.
- Informal (Intercept): Short 15 minute interviews that happen in a busy market or on the street and quickly gather information on peoples' activities or behaviors. These interviews might help create a hypothesis or dispel one. They also add color and more data points to any other qualitative methodology.
- Observation: A quick, non-intrusive and effective way of collecting data with minimal intrusion. It looks at body language to see how people sit, what they do, how they are treated, how they dress, etc.

Pros: Interviews help researchers uncover rich, deep insights and learn information that they may have otherwise missed. The presence of a well-trained interviewer can give respondents additional comfort while answering the questionnaire, ensure correct interpretation of questions, and significantly improve response rate.

Cons: Conducting interviews can be a big, time-consuming exercise that leads to a major increase in the cost of conducting a survey. To ensure the effectiveness, interviewers must be well trained in necessary soft skills and relevant subject matter.

Focus Groups

Interviews with at least 8-12 people that last 60 to 90 minutes. A focus group is run by a skilled moderator who asks probing open questions and facilitates brainstorming to understand deeper "why" and "how" questions. Groups are good for generating reactions to marketing or product ideas. They can also be a good place to identify common problems and elicit new ideas for solutions.

Pros: The presence of several relevant people together at the same time can encourage them to engage in a healthy discussion and help researchers uncover information that they may not have envisaged. It helps the researchers corroborate the facts instantly; any inaccurate response will most likely be countered by other members of a focus group. It gives researchers a chance to view both sides and build a balanced perspective on the matter at hand.

Cons: Focus groups that ask participants about their personal or financial lives can unwittingly encourage them to lie in their answers and place them in a vulnerable situation. The presence of excessively loud members in a focus group can subdue the opinions of those who are less vocal. The members of a focus group can often fall prey to group-think if one turns out to be remarkably persuasive and influential. This will bury the diversity of opinions.

Quantitative – Survey Vehicles

Household Survey (human interviewer)

- Comprehensive and representative (covers all types of people in the geography)
- Low refusal/dropout rate (~5 to 10 percent)
- Very high cost, probably $20,000-40,000 USD to interview 500 respondents in three locations in one African country
- A nationally representative survey covering 1,000 households can cost about $50,000 USD

Telephone Survey (human interviewer)

- Only covers respondents who have a phone turned on at the time the call is made
- Medium refusal/dropout rate (30 to 40 percent)
- Can only ask a few (~50) simple questions
- May require calling ~30,000 numbers to get 500 completed interviews
- Cheap – can get ~500 responses for under $7,000 USD

1 UNCDF and BFA, 'Affordable and Accessible Remittance Services for Refugees: A Toolkit', June 18, 2018

Telephone Survey (IVR)
- Only covers respondents who have a phone turned on at the time the call is made
- Can only ask a few (~20) simple questions
- High refusal/dropout rate (70 to 90 percent)
- Cheaper – can get ~500 responses for under $2,500 USD
- May require calling ~120,000 numbers to get 500 completed interviews

Online Survey (internet based)
- Will only reach a small, well-educated segment
- More flexible questions, mixing open answers with quantitative responses
- Very little control over who will respond, not at all representative
- Cheapest – setup is as little as $50 USD. No outgoing calls/messages
- If notifying people by SMS about the survey, may need ~120,000 outgoing SMS to get 500 completed interviews

Telephone Survey (SMS)
- Only covers respondents who have a phone turned on at the time the call is made
- Can only ask a few (~3-5) extremely simple questions
- Need to cover the cost of the response SMS
- Extremely refusal/dropout rate (80 to 96 percent)
- High cost of outgoing SMS can raise the cost – can get ~500 responses for about $10,000 USD
- May require sending ~50,000 outgoing SMS to get 500 completed interviews

Appendix B: Sample Discussion Guide

The discussion areas and questions outlined below should be selected, adjusted and added to, based on research objectives and priorities. If an initial product concept exists, be sure to add specific questions that test proposed product idea and value proposition. Note the conversation should be free flowing – questions should be used as a starting point to guide the discussion, and a template to ensure key areas are touched upon.

Introduction
- Thank participants for joining
- Introduce all interviewers, including name, role, institution
- Introduce reason for interview and provide brief overview of product value proposition (e.g. 'Right now, we're developing a product that helps people manage and save their money using their mobile phones. To help make sure it's useful and relevant, we'd like to learn about your current experience, and get your feedback on our initial idea').
- Ask permission to take notes, photos and/or record the conversation. Address any outstanding questions or concerns.

Household Basics
These questions help to 'warm up' interviewees, and cover basic information about their household, job and experience.

We'd like to learn a bit more your life:
- What is your name? How old are you?
- How many people live with you? Do you take care of all of them? Do any of them take care of you?
- What kinds of work do you do? How long have you been doing it?
- Did you go to school? How much schooling did you receive? Did you graduate? How about other household members?
- Are you the main decision-maker in your household? If someone else is a part of financial decisions with you, are they available to join us?

Income and Expenses
These questions explore how money flows in and out of the household. They seek to understand financial stability, and assess reaction to income/expenditure changes.
- Next, we'd like to look at all of the income coming into your household. What are all the different ways your family earns income? For each income flow, clarify who, how much, how often, and how consistent.
- What are the reasons resources might become tight for your household in the course of a week, month or year?
- Have you ever tried starting a different kind of job or business? If so, what were some of the things that led you to decide to do that?
    - How did it go? What did it change? Was anything unexpected?
    - Would you do it again?

- What are some of the most valuable skills you and others in your household have?
- How did you gain those skills? Are you or anyone else in your home trying to learn others? What are your main expenses? What are the ways your household uses money from day to day? Weekly? Monthly? Yearly?
    - How do you pay for them?
    - Do you use specific incomes for specific expenses?
    - What kinds of things do you do to plan for your expenses?
    - Which things do you go without first if resources are tight?
    - If you suddenly got triple your normal income in a month for three months, what would that change about the things you normally spend money on?
- When you look at how you spend money, are there any things where, if the price increased, you'd abandon them? What are the things you'd keep spending on?
    - If some of the things you spend money on suddenly became very cheap, are there things you'd buy more of? Are there things you'd still buy exactly the same as you do now if they suddenly became very cheap?

Debt

These questions help to understand interviewee experience with and feelings towards debt.

- Have you borrowed money before? Could you tell us about why? And how/from who you did it?
- What was your experience? Would you borrow again?
- Where would you go/what would you do if you needed to get some money?
    - What if you only needed a little money?
    - What if you needed a lot of money?
    - What if you needed it quickly?
    - What if you had a lot of time to get the money?
    - What if it was one-time-only?
    - What if you needed money for a longer time, multiple times?
- What would be your main concerns if you borrowed money?
- Would you lend money to friends and family? What about neighbors? Why? What are your major considerations when lending?
- Have you ever given money or made a loan to someone outside your own household for something? What happened?

Saving

These questions explore participant attitudes towards savings, including experience, strategies and techniques.

- Do you have savings? How do you go about saving?
    - Do you save as cash, in a bank, as an asset or investment, a savings group…?
- How do you decide what income to save? Does it change depending on the income source?
- Do you have more than one way that you like to use to save money?
    - What are the best situations for each method?
    - Does the method change depending on how much you need to save? A little or a lot? Long term or short term?
- Normally, how long do you keep your savings before you need to use some them?
    - What has prompted you to use the savings? Who was involved in that decision?
    - How high is the highest your reserves have gotten before you needed to use it for something? What was happening then?
    - Do you involve any others in your savings plans?
- Do you have different savings set aside for different purposes or goals?
    - How do you manage where they are and which are for what?

Assets

These questions clarify any key assets held by the interviewee, and how they may leverage them for financial security.

- What are your most important assets?
    - Where did these things come from? How did you get them?
    - If something happened and you needed additional funds quickly, are any of these items things you would sell to get money? Why or why not?
        - ☐ What would you sell first? Last? Never?
- Have you ever had to sell anything important to you in the past? Why?
    - How did you go about selling it? What was that like?
    - After that, did anything change about how you collected valuable or special possessions?

Financial Tools & Strategies

These questions explore the tools and strategies that the interviewee is currently using to manage his or her finances.

- Do you tend to keep track of your incomes, expenses, assets, debts or savings? Could you show us how you do that?
- What kinds of methods do you use to keep track of your financial life day-to-day? How are tools for daily financial life different than longer term?
- Do you have a bank account?
    - [If yes] When did you set it up? How? Do you remember what happened that led you to set it up?
    - Do you still use this bank account? How often? If not, what are some of the reasons why you don't use the bank account anymore? Can you imagine anything that might have motivated you to do more with it?
    - What has your experience been? Was there anything you hoped that the bank would be able to help with that wasn't there?
    - [If no] Why not? Do you have access to a bank account? Have you ever thought of getting one?
- Do you have insurance?
    - [If yes] How long have you had it? How did you come to have it? What has your experience been?
    - [If no] Do you have access to insurance? Have you ever thought about getting any?
        - ☐ Do you know anyone else who's gotten insurance? What happened when they did?
    - How much does insurance cost you?
    - Have you had an opportunity to use your insurance? What happened when you did?
- What are some of the most significant investments you've ever made?
    - What makes them significant to you?
    - Who was involved in your decision? What things did you think about before and while you were doing it?
    - Did all of those investments pay off? Did any of them not work out?
    - Would you do it again?
- Recall and describe a time when you were most uncomfortable using a financial service.
- Recall and describe a time when you were most comfortable using a financial service.
- Is there a part of your financial life that you feel takes the most time, energy, effort? What is it? How do you manage it?

Ecosystem Exploration

These questions assess the current ecosystem surrounding the interviewee, and how it influences his or her financial life.

- Who takes part in financial decisions for you or your household? Who do you consider when you make decisions?
- Who are the most dependable, trustworthy people in your life when it comes to financial matters? If you needed some financial advice, who would you ask?
- How would you describe the life of someone who you think manages their finances very well?
    - How would you describe someone who manages them very poorly?
    - Are there people in your life who you admire or look down on in those two categories? What are their stories?
- Could you finish this sentence? "A person who risks almost everything they have to start up an ambitious new business is a _____ person."
- Could you finish this sentence? "A person who does everything they can to hold onto what they already have is a _____ person."
- Is there a person in your financial life you often have to interact with that you dread? Why?
- Do you remember how your parents managed their finances when you were younger?
    - Do you remember being taught anything about household finances from them? Did you learn anything by just observing?

Mobile/Tech Use

These questions assess the mobile/tech usage and digital literacy of the interviewee and his or her family.

- Do you have a mobile phone? Could you show it to us?
    - How much time would you guess you use this phone for different things?
- Does anyone else use this phone too? How do you manage the sharing?
- Do you remember how you first learned how to use this phone?
- What kinds of things do you use it for?
- How much do you spend on credit for your phone? How often?
    - What do you usually use that credit for? Can you show us?
- What other kinds of things might you pay for on your phone or using your phone?
- Do you ever use your phone for any kind of financial transactions? What kinds?
    - How do you do that? And how often?
    - Could you tell me the story of how you found out you could do that?
    - How did you come to decide to try it? Did something happen?
    - How did you learn how to do it the first time? What was that like?

- Do you consider yourself pretty good with new technology?
- Do you have a computer or tablet?
    - What kinds of things do you do with them?
    - In what way is how you use the computer/tablet different than how you use the phone?
- Do you ever use ATMs?
- Have you ever heard about a financial tool or service that you wanted to try but it wasn't available to you?
- What was the last time you had to learn a new tool or piece of technology?
    - Do you remember what was happening when you decided to do it? How did you go about it?

The Unexpected

These questions explore how interviewees deal/would deal with unexpected events, including scarcity and unexpected inflow.

- What kinds of things can you imagine are potential unexpected events in the next month, year and 10 years that might impact your finances?
    - Which would impact in a positive way? Which in a negative way?
    - What is the likelihood that these events would happen? Have they happened to you before? Someone in your household? Someone you know?
- What's your best way of managing when you don't have the resources you need?
- Think of some times when you didn't have enough. What was happening in your household then?
    - Did the work become scarce? Did someone become sick? Pregnant? Married? Was a bill due?
    - Did you feel prepared for it when it happened? Was it sudden or an expected event?
    - What kinds of preparations did you make for that time, if any, and why?
    - Did the way you prepare for those times change as a result?
    - What's the first thing you do to manage those circumstances? What's the second thing? Third? Fourth?
- If you suddenly had just a bit more money to work with, what's the first three things, in order, that you'd do? What if you suddenly had a LOT more money?

Goals, Aspirations & Investments

These questions explore participant goals and aspirations for the near and long term, and their strategies for achieving them.

- How would you describe your ideal financial life in the future? What would the impact be on:
    - Your social life?
    - Your work?
    - Your home?
    - Your average week?
    - Where you live?
    - Your assets?
- Do you have specific, concrete goals you work towards?
- Can you tell a story of anyone you know or know of who is much closer to reaching their goals now than they were one year ago? Who are they? What happened?
- Can you think of someone you know who took a risk to improve their lives and it failed in a big way? What happened?
- What's the best investment you think you could possibly make right now with your current level of resources?
    - If you had just a bit more resources available, what's the even better investment you'd make that you can't afford right now?
- When you think about the future and your plans, how much time into the future do your thoughts immediately go?
    - What are some of the differences between things you see far ahead and things you think about next week or next year?
- If you have children, what do you hope they learn about finances? What would you want them to do?
    - What would you want them to do differently than you have?
    - What would you want them to keep the same?

Tool: Ecosystems Map – return to main toolkit

How to use it:

- The interviewer asks the interviewee to describe the channel or people that influence his/her decisions. The interviewee selects the picture that matches that description and places it on the appropriate circle. The closer the circle is to the centre, the greater the influence.
- If the interviewee describes something which does not have a picture the interviewer should write it on a Post-It note and ask the interviewee to place it in the appropriate circle.

Why use this tool?

- It shows the channels that provide information, the people that influence decisions, and the barriers to information flows.
- It enables the interviewer (and therefore the FSP) to understand which communication channels are most effective and which individuals/institutions raise most awareness or influence decisions.
- It can be used in both individual and group interviews.
- The information collected through this tool can be useful for the different stages of the customer journey mapping.

Tool - how to carry out ideation – return to main toolkit

'How might we….?' questions provide a jumping off point for ideation and allow users to focus brainstorming around a particular challenge or opportunity. To start, the team needs to come up with a set of relevant "how might we…?" questions based on the chosen persona, i.e. identify ways in which his/her needs can be met, and not restrict team members' ideas to a prescribed solution.

1. In order to come up with the relevant set of questions, each participant is asked to generate three "how might we…?" questions and share them with the rest of the group.
2. Similar ideas are clustered together.
3. The list is then narrowed down to three top questions which are used to inform the subsequent brainstorming rounds.

Some example questions used when ideating a youth-targeted product:

How might we…

…support working low income youth to grow their businesses?

…build the savings habits of low income youth?

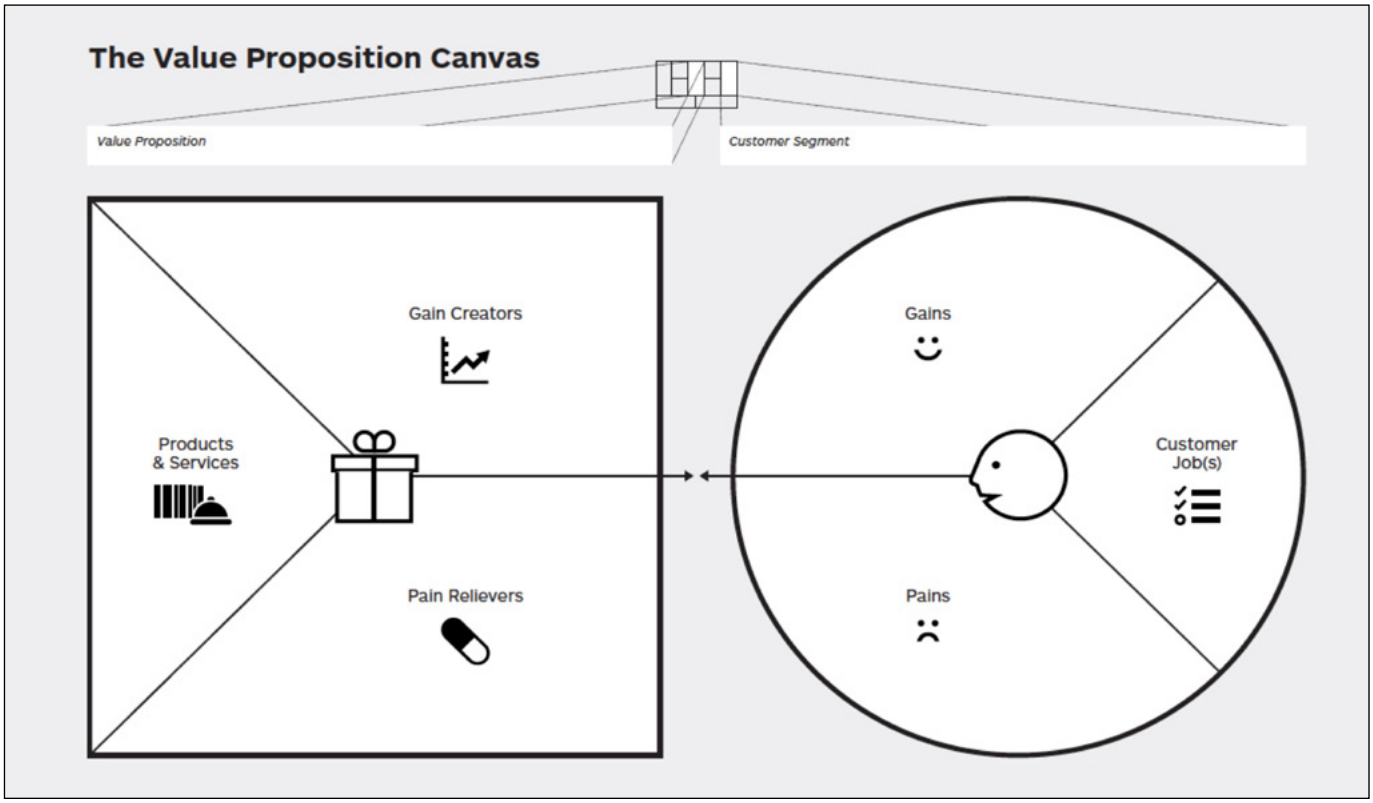
…leverage youth networks to build financial capability?

…grow with youth on their journey to adulthood?

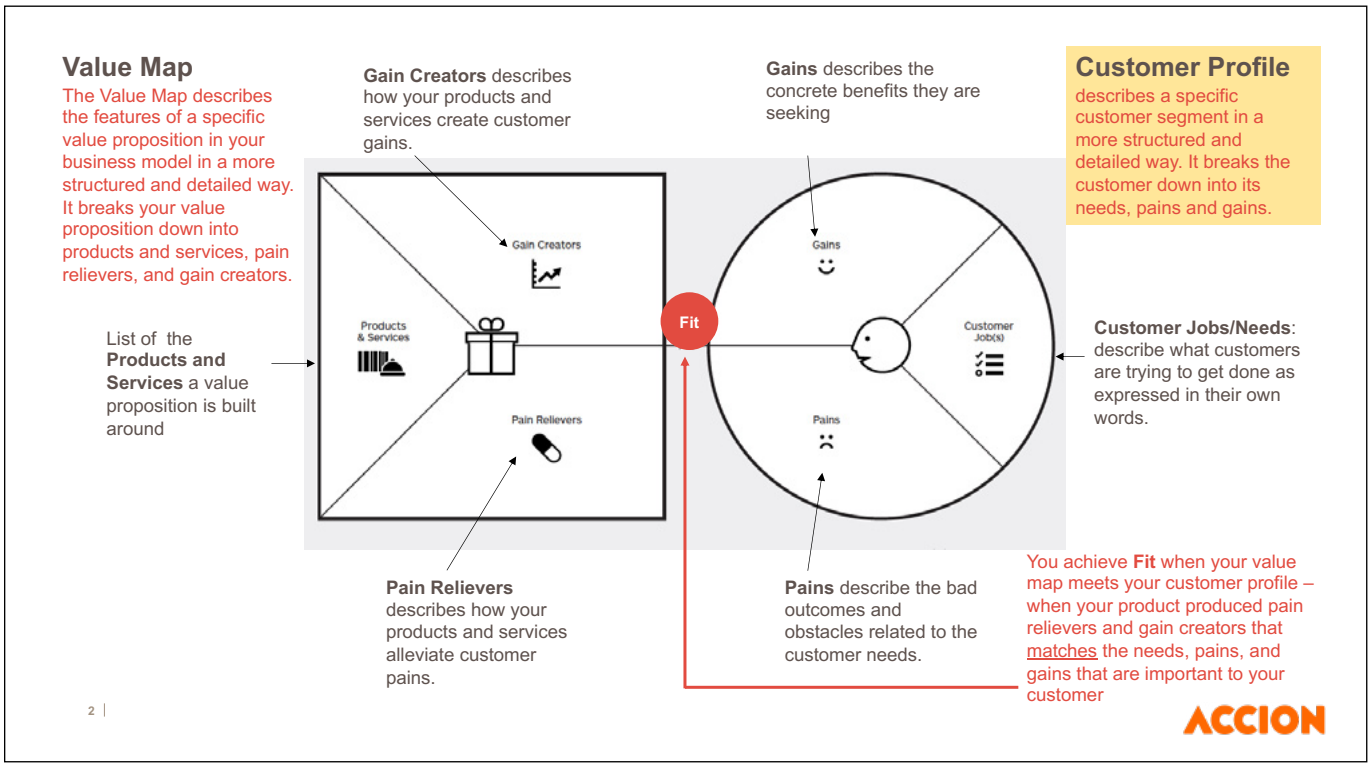
4. The participants then brainstorm ideas to answer each "how might we…?" question, thus generating as many solution concepts as possible that address the question.
5. Ideas can be written on sticky notes and posted on a wall or whiteboard. Building on each other's ideas should be encouraged in the process.
6. Once all the ideas are up, the group discusses and selects the top three ideas, placing a star on the relevant note. It is really important that you do not focus in on only one idea too soon.

This creates a well-developed shortlist of potential solutions that would really make a difference to the chosen persona's financial needs, taking their environment into account. The solutions can either be clustered into one product that is offered to the market or embedded in a suite of products that aim to transform the experience of FSP customers.

Tool - Customer Value Proposition template – return to main toolkit



Source: Strategyzer



Source: Strategyzer

More information about this tool can be found here.

Tool: template for setting product KPIs – return to main toolkit

ROI drivers	Output	Outcome	KPI
Increased revenue through better understanding of customer segments and needs	personalized customer engagement at each touchpoint	new customers reached	number of segments defined, number of products (vis-a-vis relative usage)
		increased take-up/ activity	activity ratios: customer growth, transaction value/volume, avg. savings/loan balance, repayment rate, cross-sell, interest income, fees, and commissions
	targeted product design	new customers reached	number of segments defined, number of products (vis-a-vis relative usage)
		increased take-up/ activity	activity ratios: customer growth, transaction value/volume, avg. savings/loan balance, repayment rate, cross-sell, interest income, fees, and commissions
	optimized channel mix	new customers reached	number of segments defined, number of products (vis-a-vis relative usage)
		increased usage/ channel	activity ratios: customer (AND AGENT) growth, transaction value/ volume, avg. savings/loan balance, repayment rate, cross-sell, interest income, fees, and commissions, usage/channel, active agents
	improved customer relationship	increased customer satisfaction and loyalty	retention rate, customer lifetime value, Net Promoter Score (NPS), customer satisfaction survey
Decreased costs through improved customer lifecycle management	targeted acquisition strategy	reduced customer acquisition cost (CAC)	CAC, conversion rate, organic marketing
	enhanced approval and analytics process	reduced portfolio risk management costs	approval rate, renewal rate, % reduction in portfolio at risk (PAR), write-offs, risk losses, monitoring and reporting costs (time spent)
	improved disbursement and repayment process	reduced channel operating/agent management costs	operating ratios: turnaround time (TAT), cost/channel, account servicing costs, % reduction in reconciliation and settlement costs (time spent)
		reduced portfolio risk management costs	approval rate, renewal rate, % reduction in PAR, write offs, risk losses, monitoring and reporting costs (time spent)
	targeted collection strategy	reduced collection costs	% reduction in collection costs
	improved customer relationship	cost effective customer service	decreased turnaround time for issue resolution, % increase in successful issue resolution, PAR, retention, churn, renewal rate

Source: Accion Global Advisory Solutions

Tool: product structure document template – return to main toolkit

Product Purpose	
Eligibility Requirements/Acceptance Criteria	
Product Purpose	
Exclusions (if any)	
Product Structure	
Product Amount	Including min/max
Product Term	
Frequency of Repayment	If applicable
Interest Rate, Charges and Commissions	
Penalties, Fees and Extra Charges	
Security (collateral, guarantor, etc)	
Product Channels	
Application	
Approval	
Disbursement	
Repayment	
Collections	
Engagement	
Additional Benefits	
Insurance	
Customer Care/Customer Service	

Source: Accion Global Advisory Solutions

Tool: process mapping steps – return to main toolkit

Who?	Step	What?	Inputs/ outputs	Controls	Data

Tool: pre-pilot checklist – return to main toolkit

Each of he below items should be reflected in detail in your project workplan (which should note the tasks underneath each of these line items, the dependencies, who is responsible, etc.). Note that some of these activities, though in separate sections, may take place in parallel. The below list is intended to serve as a high-level checklist/ checkpoint to ensure that all pre-requisite activities have taken place prior to going to market for the product pilot.

Market Research & Product Concept Definition

- Market research (primary & secondary)
- Competitive landscape analysis
- Target market definition
- Persona development
- Customer journey
- Internal data analysis
- Systems & technology review/gap assessment
- Product concept
- Value proposition

Product Build

- Business case
- Systems & technology build
- Functional specs
- Technical specs
- Process mapping
  - Data inventory
  - Product policies & procedures
  - Risk & Compliance approval
  - Regulatory approval

Pilot Preparation

- Staff training material development (direct sales staff, call centre, agents, etc.) & training
- Internal communications strategy
- **Ensure adequate customer care:**
  - Call centre
  - Customer care escalation matrix
- **'Go to market' strategy:**
  - Sales/customer engagement strategy
  - Direct sales staff training
  - KPI for staff/agents
  - Product KPIs
- **Marketing:**
  - Material development
  - Marketing/communications strategy

Product Testing & Monitoring

- User Acceptance Testing (UAT) for tech-enabled products
- Usability testing with customers, agents, etc. (as relevant)
- Beta test plan (if applicable)
- Pilot work plan
- Product dashboards
  - Pilot monitoring (staff/agent & product)
  - Post-pilot monitoring (staff/agent & product)

Tool: structure of user test – return to main toolkit

Box 18: Structure of user test

1	Welcome participant and get informed consent
2	Administer any pre-test questionnaire (written or oral e.g. to check are testing appropriate user)
3	If appropriate, provide training on use of system
4	Ask participant to use system to complete activity and ask them to speak to you about what they are doing and thinking while they do this (avoid telling them what to do! This is the main mistake FSP staff make when conducting user testing)
5	Record the data – use of system, what they say, length of time taken to complete activity
6	Conduct debriefing interview – follow up with questions about areas which they found difficult
7	Post-test questionnaire - levels of satisfaction, expectations met, etc.
8	Thank the user (and possibly reward the user)
9	Analyse the data and implement recommended changes to improve usability. In addition to look and feel and functionality changes in the design itself (e.g. to the menu of a mobile phone app), this can also include updates to staff training or customer marketing materials.

Source: DMAC team

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